Gas Journal

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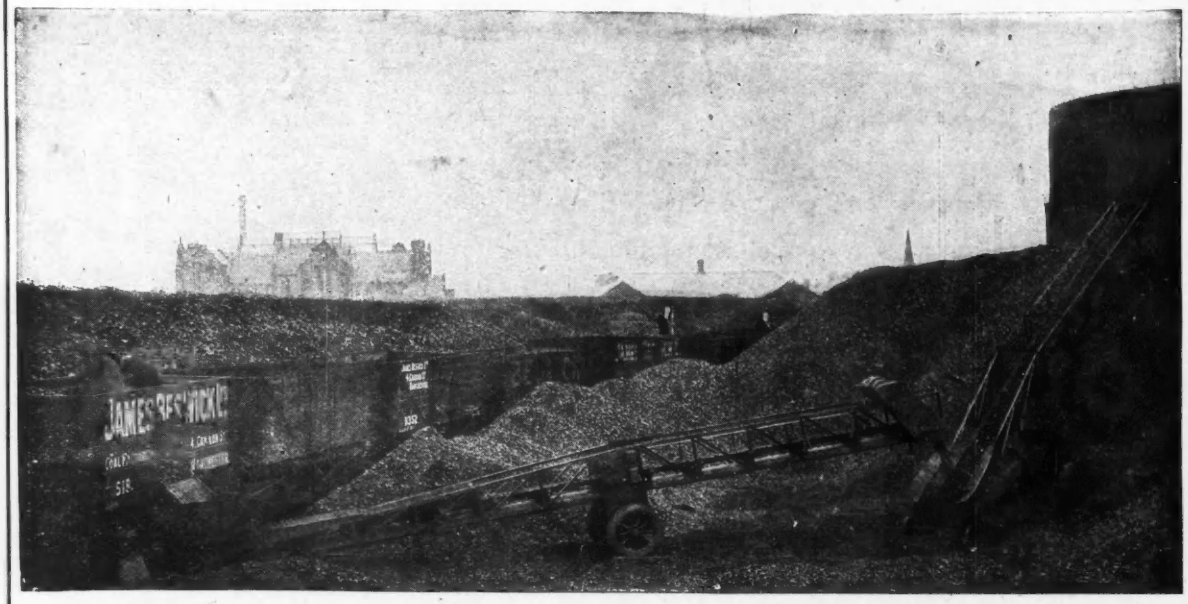

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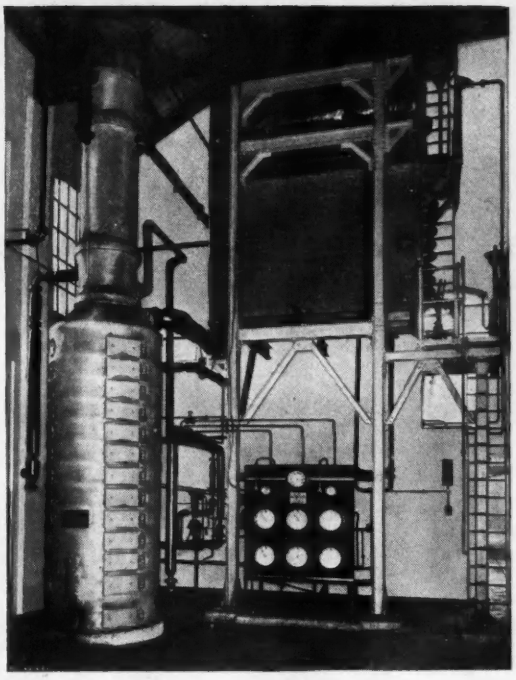

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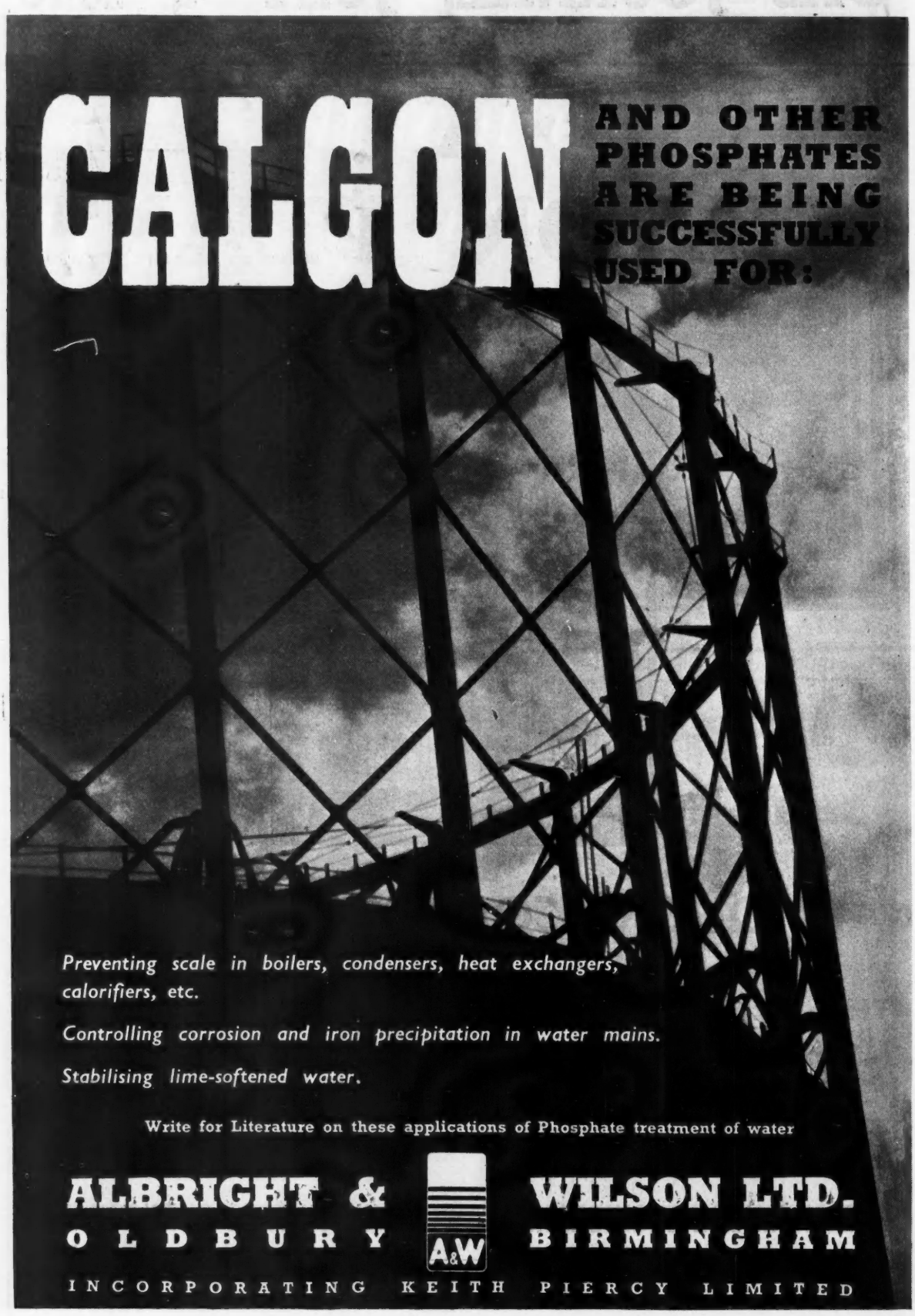

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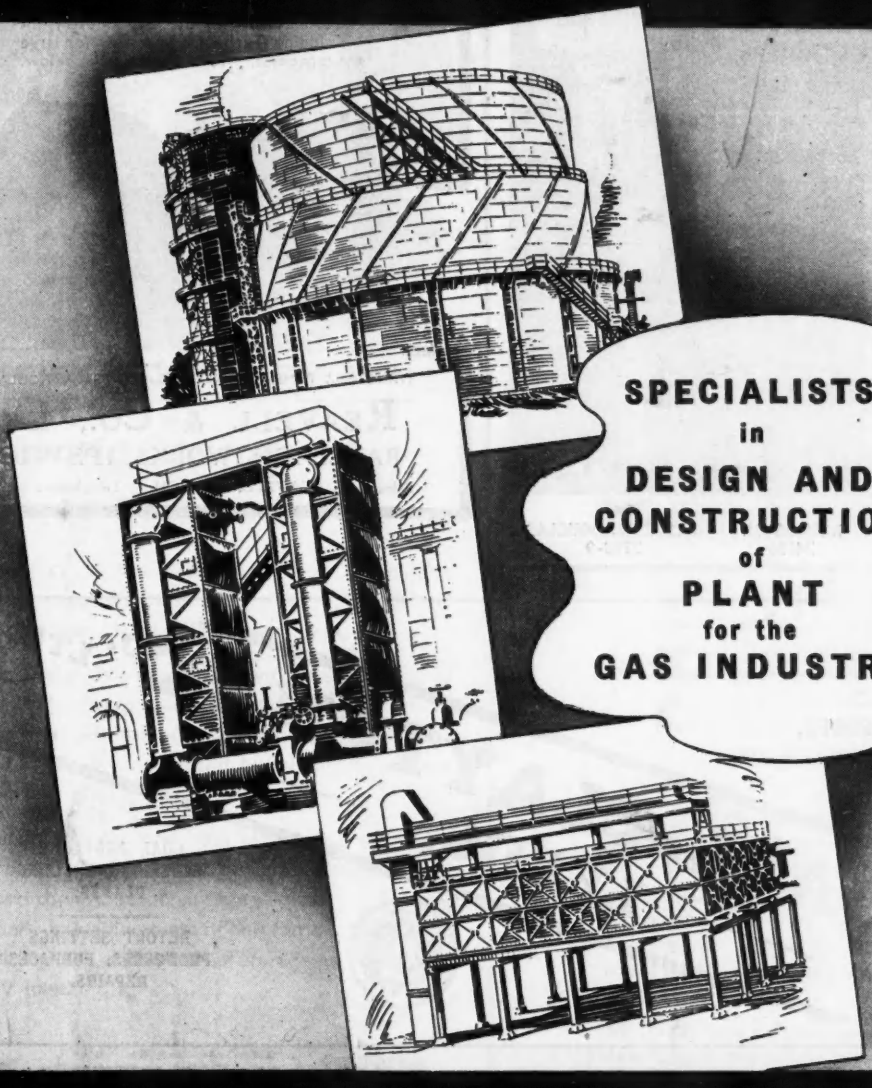

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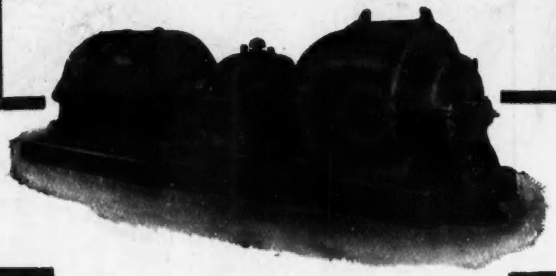

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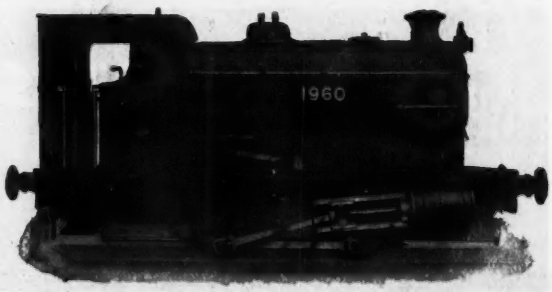

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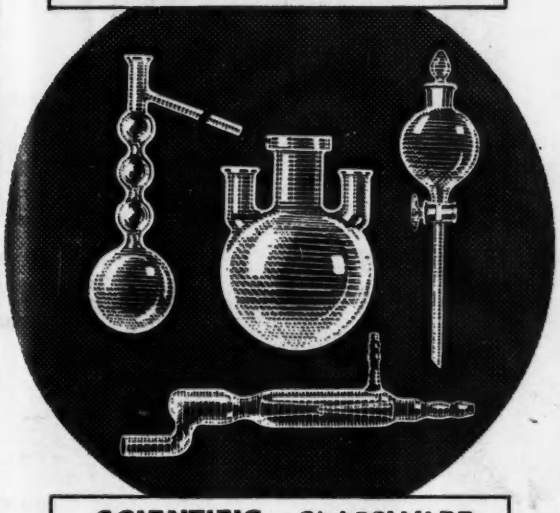

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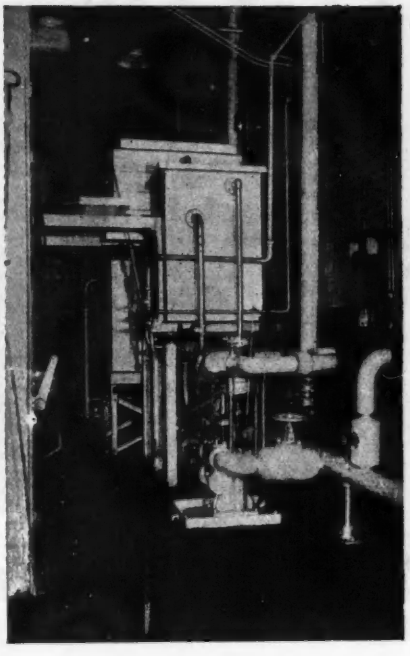

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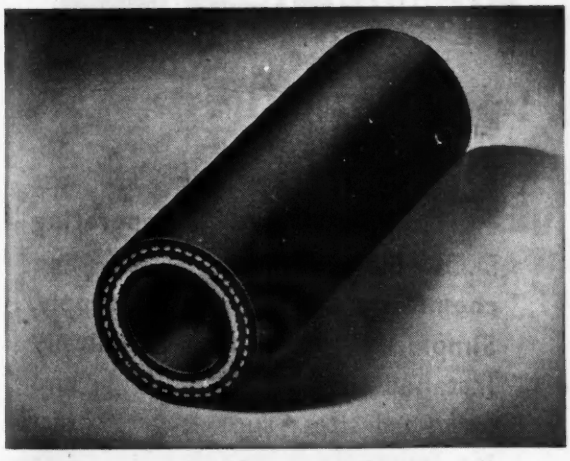

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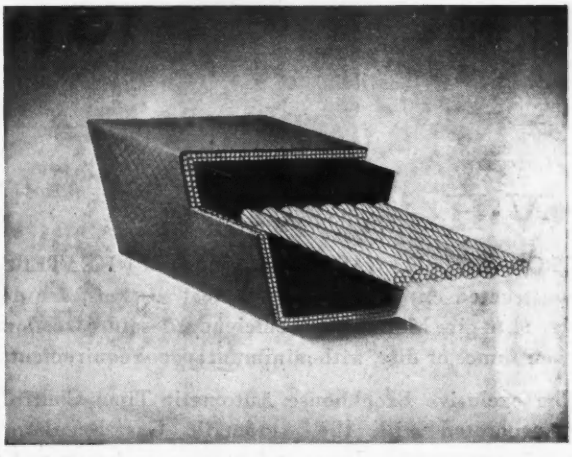

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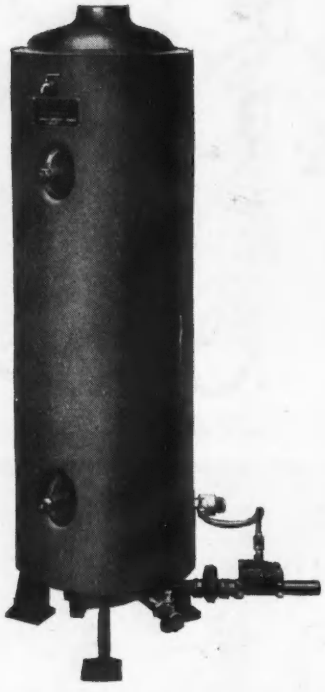

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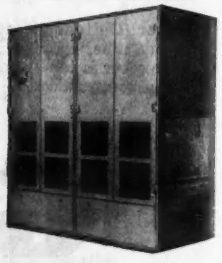

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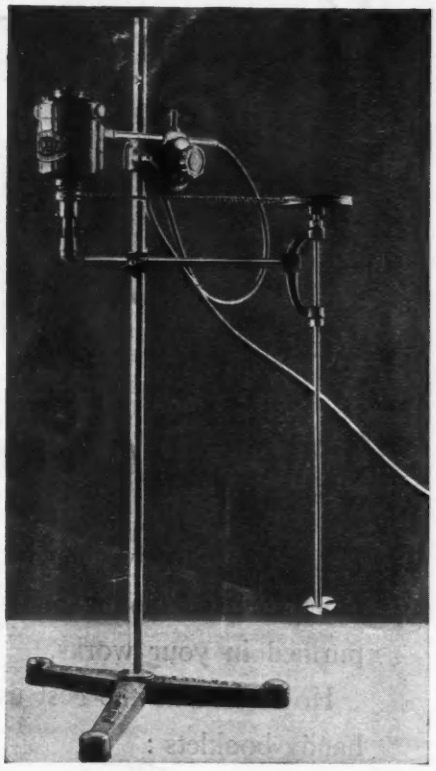

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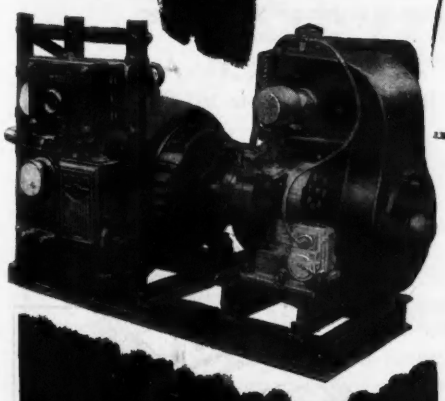

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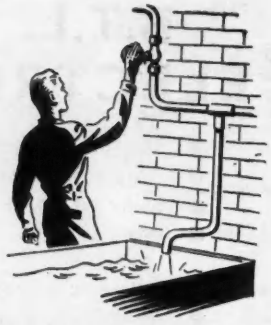

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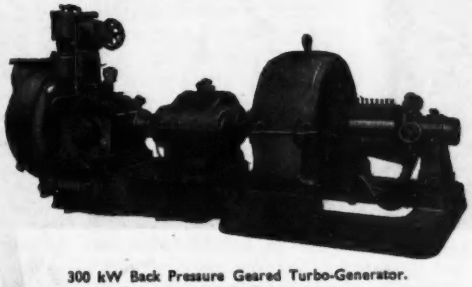

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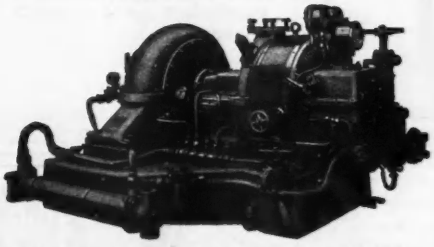

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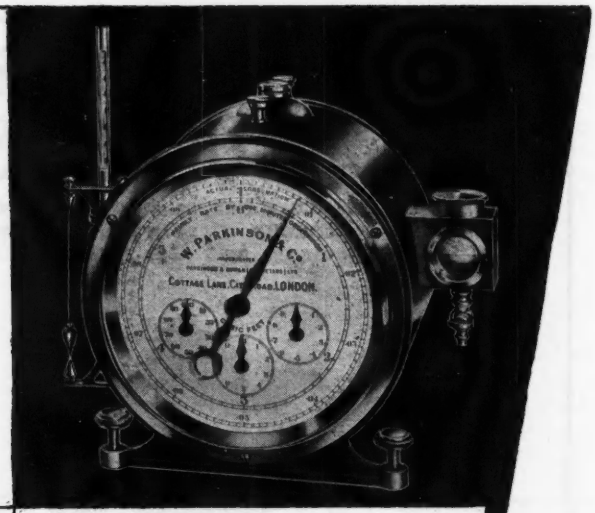

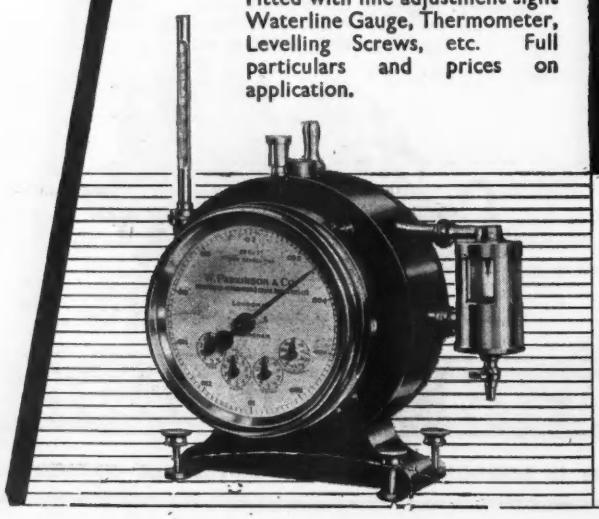

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VOL. 246 97th YEAR No. 4285

EDITORIAL NOTES

HEAT SERVICE FOR NEW HOMES

FOR a long time before June of this year the staff of the Gas Light and Coke Company—or, rather, part of that staff engaged particularly on the aspect of the domestic usage of gas, its use for space heating, water heating, cooking, home laundry, and refrigeration—had been carrying out diligently and intelligently a great deal of fundamental work necessitating new angles of approach and demanding the utmost co-operation with other bodies and organizations concerned with the housing of and the provision of comfort for the community. The amount of information gathered—information essential to better housing conditions and to a clearer conception of overall amenity—has obviously been immense, and equally obviously its interpretation has been difficult and at the same time revealing. Better housing with adequate heat service combining comfort with economy and smokelessness with convenience is a matter of urgency and magnitude; and that under present printing conditions we have devoted so much space to the contribution on this subject by three Watson House maestros—Messrs. Andrew, Dunning, and Holliday—is sufficient indication of the importance we place on the Paper they presented at the June meeting of the Institution of Gas Engineers. The contribution as we give it in the "JOURNAL" is in more finished form than it was possible for the Authors to submit it in time for the meeting last month, and to this extent it is, until such time as the Institution grey books are published, exclusive.

This contribution on the part which gas and coke can play in the vast housing programme which lies ahead has been described as a text-book on the subject—*i.e.*, a manual of instruction, a standard book in a branch of study. It has text-book dimensions—a fact which we hope will not be a deterrent to readers—and it is surely a manual of instruction. But we feel that the Authors themselves would be the last to regard it as a be all and end all; rather, with us, that they would that it should be looked upon as a guide on which reliance can be placed and on which imagination should be exercised in the public interest and in the interest of the Gas Industry. The Authors have developed and recorded ideas for improvements, practical improvements within the reach of all; they have shown that, granted the right approach, gas and coke can, in a competitive fuel field, offer the public what it demands and has a right to enjoy while helping the national cause; they should have, and we think have, provoked both thought and enthusiasm regarding further lines of research; they have discussed the vital matter of cost in relation to service given fairly and squarely and, we suggest, with a severely scientific outlook. At the Institution meeting the view was expressed that every effort should be made to "get the story over" to the women of the country; we were told that the housewife of to-day is eager to know what can be done, anxious to learn. It was also suggested—and it was a suggestion that we enthusiastically reinforce—that arrangements should be made for the Paper to be discussed regionally throughout the country. To our mind the conception and contents of this very full and urgent Paper merit that this recommendation should be carried into effect without delay. We ourselves are not hypnotized by the length of the communication, the contents of which, varied and suggestive, full of implications, should be grasped by the executive personnel of all gas undertakings, large and small alike; for every gas undertaking in the land is right now confronted with the very problems which the Paper seeks in part to expound and to solve.

§§

RELAXATION OF RESTRICTIONS

THREE years ago the Board of Trade made it clear that new or additional supplies of gas should be afforded only when it was proved that they were needed for the war effort or that lack of supply would result in serious or exceptional hardship—this irrespective of considerations of overall fuel economy which might result from the installation of gas supply. With qualifications, these restrictions have now been suspended by the Ministry of Fuel and Power. The qualifications are understandable enough. Continuing limitations on the amount of labour available and the amount of materials will obviously dictate the degree of development which any gas undertaking can in fact carry out, and in any case development will have to be governed by priorities. The Ministry has set out these priorities. The war effort and food production have first claim, and then follow in order supplies for essential civilian needs, for new buildings and rehabilitated buildings, and to satisfy cases where the withholding of a supply would result in genuine hardship. With a view to the maximum benefiting with a minimum expenditure on labour and materials, priority should also be given to the connexion of premises on the route of existing mains, though for the time being preference, within that priority, should be given to the connexion of those premises which have no reasonable facilities already—which, of course, is common sense. Subject to these priorities, undertakings may—if they have the labour and materials available—meet other requirements.

It is three years ago, too, since the Board of Trade virtually put an embargo on the hire and hire-purchase of appliances. With the present relaxation of restrictions undertakings are free to make whatever arrangements they think appropriate for financing the appliances and services they are able to offer; but the Ministry does not anticipate that it will be in a position to approve schemes for the building of new offices or showrooms or workshops, or major alterations to such buildings, at any rate during the first post-war year. We would add that what applies to gas applies equally to electricity.

WHERE TO FIND IT

WE have a card-index system which covers in practice quite well every item which is published in every "GAS JOURNAL" each week. It is not an elaborate system; items are not cross-indexed for the sheer love of cross-indexing; restraint rather than undue enthusiasm has been and remains the underlying principle in the compilation of the "JOURNAL" index. The index has been developed over many years; it has entailed and weekly continues to entail several man-hours, and these man-hours are skilled, for we have always regarded the compilation of an index as a job requiring insight and intelligence, for the compiler is doing his work as it were for the "other man's mind." The "JOURNAL" index does not occupy a great deal of space, though naturally the space occupied grows continuously as the "JOURNAL," not far from its century, progresses with the Industry it seeks to serve. For us at the "JOURNAL" offices it is a comfort and also a time-saver to know where something—it may be an article on the use of rubber for gas-main jointing, or a paper in the distant and not too-well defined past on some tar derivative, or, maybe, when so-and-so filled such and such position—can be found. And it is particularly

pleasant, when a 'phone call comes through from an enquirer concerning what he thinks is the name of the author of what he believes to have been a paper or a thesis—or was it a book?—on a subject relating to something to do with carbonization, if he remembers rightly, to ask him to hold the line for a moment and then to give him the answer he seeks. We have thousands of calls, telephonic and otherwise, for information on subjects covering a very wide field; and the answers, if not in the bag, are usually to be found by reference to our index.

We mention this little mater in no spirit of preening, and if in praise, then in praise of the index system conducted with what we think is a modicum of thought to the end of time-saving. We feel sure that many other organizations which have taken indexing seriously, and not as an odd job for the office girl or the office boy to prevent thumb-twiddling, will agree that the time taken and the expenditure incurred in keeping up to date an index system have been rewarded in two ways—the one its usefulness to the organizations themselves; the other its help to others. And we refer to the matter especially in the light of remarks made at the recent meeting of the Institution of Gas Engineers during "Question Time," when one of the speakers asked that the information contained in the *Transactions* of the Institution should be indexed not only per volume, but in a much more comprehensive way; so that an enquirer for knowledge or fact would have the time saved in having to wade through the indexes of individual volumes of the *Transactions*. This is obviously a desirable step, which would add prestige as well as usefulness to Institution work. It would also entail expense, which thoughts give rise to many questions. For example, how much should one charge an enquirer per enquiry duly answered? Ought there to be a basic charge per enquiry, with an additional sliding-scale charge according to the value of the information imparted to the one who wished to be informed? Or ought those who never desire to seek items of information bound together in volumes of the *Transactions*, of which they are the proud possessors by virtue of membership of the Institution, to be expected to support a service which is asked for by the ardent knowledge-seeker? And how ardent does a knowledge-seeker become when he has to pay for the information he thinks he needs? These questions are not entirely frivolous; they have their roots in experience. But, of course, we agree with the desirability of a perpetual index to Institution *Transactions*. We could suggest, but will refrain from putting forward, several non-paying schemes—that is, schemes unremunerative in themselves from the financial balance-sheet point of view—in this regard. We might suggest, however, that the published indexes of the "JOURNAL," if filed together as well as being bound with copies of the "JOURNAL" to which they particularly refer, would prove useful, as a next-best to a perpetual key card-index, to ardent enquirers on many matters.

The Coal Industry

Speaking last week at the annual conference of the National Union of Mineworkers at Blackpool the Minister of Fuel and Power, Major Lloyd George, declared that there had been some misunderstanding about the scope of the Government's proposals. The central authority would be an independent body, appointed by the Minister, with the fullest powers to compel amalgamations wherever the national interest called for them, if they were not voluntarily forthcoming, in order to ensure that the technical reorganization called for by the Reid report was effectively carried out. The central authority would be provided with teeth. If productivity continued at its present level the mining industry would become a drag on the economic life of the country at a time when Britain's place in the world depended on the degree and rapidity of her economic recovery from the effects of the war. If there was delay in effecting the reorganization of the industry neither the consumer nor the producer would benefit. Hence he was anxious to press ahead, during the appointed "stability" period, before fresh troubles about the future arose and before the issue of high wages versus cheap coal could again come to a head. He believed that the present plan, with a central authority, amalgamated undertakings, reinvigorated management and direction, and an industry reorganized technically, could create the new spirit promised as the result of a nationalization scheme yet to be defined.

ISE *versus* IZE

The following appears in *Standards Review* just published by the British Standards Institution:

"Physician, heal thyself!" Throughout the centuries doctors have had to meet this challenge: the sick physician excites as little sympathy as does the bald hairdresser. Public opinion demands that each should take his own medicine, or confess himself a failure. The B.S.I. stands in a similar quandary. For long it has championed the use of "s" in the spelling of "standardisation," although *The Times*, and most other papers, favour the rival "z." Now the Oxford Dictionary has chosen "standardization" as the preferred spelling, and in doing so has the support of logic and phonetics.

Is the B.S.I. justified in continuing to back its fancy, or is such individualist action a direct contradiction of the Institution's fundamental principles?

Personal

On June 20 the staff of the Bradford Gas Department presented a case of silver to Mr. G. E. CURRIER, M.B.E., M.I.Mech.E., Engineer and Manager, as a token of their esteem on the occasion of his marriage on June 6 to Miss Gwendoline Mary Henshall, of Alderley Edge, Cheshire. The staff also took the opportunity of extending their congratulations to Mr. Currier on the award of the M.B.E.

Obituary

Thomas Carmichael

The death took place on June 26, following an operation, of Mr. THOMAS CARMICHAEL, J.P., M.Inst.C.E., Deputy Chairman and Managing Director of the Portsmouth and Gosport Gas Company. He was 57 years of age. Born at Barrhead, Scotland, Mr. Carmichael was educated at Allan Glen's School and the Royal Technical College, Glasgow, and trained as a civil engineer. After serving with the Corporations of Glasgow and Nottingham, he was appointed nearly 27 years ago as Assistant Engineer to the Portsmouth Gas Company. In December, 1918, he accepted the position of Chief Engineer, the duties of General Manager being added in 1930. He took a leading part in the reorganization and extension of the Company, and was also prominent in the general activities of the Gas Industry. As Engineer at Portsmouth he was responsible for the design, specification, and erection of new plant to the value of £750,000.

Mr. Carmichael was Deputy Chairman of the Southampton Gas Light and Coke Company, Director of Associated Gas and Water Undertakings, Ltd., an inspecting engineer to the South Western Tar Distilleries as well as being a member of the committee, a member of the Institute of Fuel, Chairman of the National Gas Council (Southern District), Director of the Portsmouth Water Company, Hon. Secretary to the Gas Employers' Federation (Southern Area), Hon. Member and formerly Treasurer of the Portsmouth and Southsea Rotary Club, and past President of the Portsmouth Chamber of Commerce. He was prominent in many other local activities. He was Hon. Joint Secretary to the Southern Regional Joint Industrial Council.

During the war Mr. Carmichael's leadership was largely responsible for the continuance of the gas supply to Portsmouth and district under the stress and damage of air raids. He was a member of the War Emergency Committee National Joint Industrial Council and Regional Gas Engineering Adviser of the Southern Region.

In 1928 Mr. Carmichael was presented with the H. E. Jones "London" Gold Medal at the annual meeting of the Institution of Gas Engineers.

In view of the close association of deceased with the public life of Portsmouth a memorial service was held in the Cathedral yesterday.

Diary

July 6.—Manchester District Association of Gas Engineers: President's Day, Rochdale.

July 10.—Federation of Gas Employers: Central Committee, Gas Industry House, 11.30 a.m.

July 10.—British Gas Council: Gas Industry House, 2.30 p.m.

July 12.—Solid Smokeless Fuels Federation: Technical Committee, Gas Industry House, 10.30 a.m.

July 16.—London and Counties Coke Association: Finance Committee, 11 a.m.; Executive Committee, 11.30 a.m.; Central Committee, 1.30 p.m., Gas Industry House.

Letters to the Editor

"Question Time"

DEAR SIR,—Your Editorial "Institution Retrospect" in the "JOURNAL" of June 27 is certainly interesting and the criticism generally justified. There is just one thing which "Question Time" did accomplish—it brought to light some questions which are never, or seldom, properly discussed. The mechanical producer is a case in point. It is a pity there was no discussion of the reply, because there is a distinction between a mechanically-clinkered producer and the full, "outside" producer in which gas is made separately and, generally, cooled before it reaches the setting. There is justification for the former if not for the latter. If we can eliminate the arduous labour of fire-cleaning without abandoning the advantage of producer gas as hot as in the built-in producer, we shall have done something.

Of course, the fun of the Brains Trust consists in the impact of the "unseen" question on the unprepared minds of the members. This increases the entertainment value of the session, but does it enhance the value of the answers? It is interesting to note that only 5 of the 10 questions were dealt with at the Institution, and these 10 were selected from a much larger number. Would a limitation of the length of the answer giving more scope to an unprepared discussion improve the Institution "Question Time"? On the other hand, 19 members actually spoke in the 75 minutes allotted.

Yours faithfully,
June 29, 1945. "QUESTIONER."

DEAR SIR,—In Dr. E. V. Evans' reply to the question respecting "Research as a Revenue Producer" he gave as an outstanding example the advantage which came from the change from small to large charges in horizontal retorts. The advantages were considerable and precisely as he described these, but while I was actively engaged from the start to the finish in this development, I can recall nothing done at that time which can be described as "research."

The facts, so far as I am aware, were as follows: The small charges in "through" horizontal retorts were essential in the first place because nothing but rakes were available to pull out the charges, operated as these were firstly by hand and later by hydraulic power with a machine at each end. The charges had to be small to provide space for the rakes, and as a consequence it was customary to use six-hour charges.

Seeing that there was so much free space above the charge—as there is to-day in the small works with horizontal retorts—there were all the disadvantages to which Dr. Evans refers. Indeed, Mr. A. F. Browne, then Engineer of the Vauxhall Works of the South Metropolitan Gas Company, once publicly described the tar produced as nothing but "free carbon and water."

As a result several people, notably Williams & McPhee, Hunter & Barnett, and the firm of Sir William Arrol & Co., developed hydraulic pushers, whereby one instead of two machines could be used to discharge the retorts, and it then became obviously advantageous to use thicker charges—say, 12 in. instead of 7 in. Apart from other considerations a thicker charge held together so much better than a thin charge, which was likely to break up as it was pushed out. All the advantages which followed from the larger charges were immediately apparent, and everyone concerned became active in changing over to pushers and heavy charges.

This development mainly resulted from the unsatisfactory effect of the hydraulic rakes firstly on the retorts and secondly on the coke, the quality of both of which was badly affected due to the rough treatment by the power-operated rakes, while in addition the old method required the services of two machine operators, or six instead of three per 24 hours. On the other hand the pushers, or dischargers as these were later called, brought about improvements in all directions.

Certainly research, as we understand the meaning of the word to-day, cannot rightly in my opinion be given the credit for this great improvement, seeing it was the application of pure common sense and nothing else which was the cause of this striking success.

While research in its proper place is admirable and necessary it cannot take the place of practical experiments, which in many cases render research redundant.

In fact, Messrs. "Putting two and two together" and "Trial and Error" are to-day still strong competitors of the fashionable and sometimes extravagant "Miss Research," while I would hazard a guess that our canine friends "Pluto" and "Fido," as their names indicate, were also of the masculine gender!

Gas-Works, Yours faithfully,
Cheltenham. G. M. GILL.
June 30, 1945.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

Gasworks Plant Extension

Mr. G. S. W. Marlow, a barrister-at-law appointed by the Minister of Fuel and Power, held a public enquiry at Stoke Town Hall on June 8 into an application by the Stoke-on-Trent Corporation for a Special Order, under the Gas Undertakings Act, to authorize the use of additional land at Etruria for the manufacture of gas. Among those present were Mr. W. C. Scott (Deputy Town Clerk of Stoke-on-Trent), Mr. J. E. Stanier (City Gas Engineer), Mr. J. S. Warrilow (Deputy Gas Engineer), Dr. A. Wotherspoon (Medical Officer of Health), Mr. Eustace Bowles (Messrs. Knight & Sons, Newcastle, representing objectors, and Mr. P. A. Trafford (a property owner and objector).

The Chief Gas Engineer was prepared to recommend to the City Council that the following undertaking be given:

> That the land on which it is now proposed to erect purifiers will not at any time be used for any purpose other than for the erection and use of a dry purification plant, appertaining solely to gas which has been commercially de-benzolized in accordance with the drawings produced to the inspector.

It was upon such undertaking and amendment of the area to be scheduled that Mr. Eustace Bowles and Mr. Grindey would withdraw their objections, Mr. Scott said.

The Corporation were faced with an enormously increased demand for gas, as many pottery factories were in process of or contemplating changing over from the old-fashioned "bottle" kiln, using solid fuel, to the continuous firing kiln using town gas. It was the new purification plant which the Corporation proposed to place on the land, the purifiers dealing with the crude coke oven gas which the Corporation took from the Shelton Company.

The grounds of the objections were as follows: (1) That the Corporation had other land available; and (2) the amount of obnoxious gas, vapours, grit, &c.

In the latter case, Mr. Scott said, the objections appeared to be based on a misconception of the Corporation's intentions. The Chief Engineer would say that none of the alternative sites was suitable for the purpose, and that this plant, particularly in the manner in which it was to be constructed, would emit practically no dust or grit and very little smell. There was nothing in the proposals which could possibly contribute to the deterioration of neighbouring property.

Evidence was then called for the Corporation, Dr. Wotherspoon stating that there was nothing in the process which, in his opinion, should have any detrimental effect on health at all.

At the close of the enquiry the Inspector visited the proposed site.

I.G.E. 1945 Examinations

Candidates for the 1945 Examinations of the Institution of Gas Engineers in Higher and Diploma Grade Examinations in Gas Engineering (Manufacture) and (Supply) are informed that, except in special cases, no oral examinations will be held this year.

Those candidates required to attend for an oral examination will be notified in due course. Such Oral Examinations will take place on July 11.

Mr. A. E. Sylvester, Mrs. Abbott, Colonel H. C. Smith, and Mr. W. J. Sandeman in the gas kitchen in the *Daily Herald* "Post-War Homes" Exhibition at Dorland Hall. Demonstrating the equipment is Mr. W. H. Becket. In this exhibition, which will be open till Aug. 26, the British Gas Council is showing a model of a dining kitchen in addition to the one seen in our photograph. There are three other exhibits demonstrating gas equipment.

Newport Prizes for Suggestions

Prizes awarded to members of the public who made the best suggestions for improvement of the model gas kitchen exhibited at Newport Gas Company's Showrooms were presented at the showrooms recently. Mr. R. Wilson Bartlett, J.P., F.S.A.A., Deputy Chairman of Newport Gas Company, presided, and said the kitchen was arranged according to a plan drawn up by Mr. C. F. Ward, the Borough Architect, after visiting other large towns where modern kitchens had been on view.

Since the kitchen had been on view it had been inspected by some 22,000 people, most of whom had approved of the layout. However, some were critical enough to respond to a request for suggestions of improvements. The suggestions showed that no architect could ever draw up a kitchen to please everyone, but Newport's kitchen had pleased the majority.

Prizes were presented by Councillor Mrs. Letitia Bell, a member of Newport Housing Committee, who said Newport was extremely fortunate, not only in its gas undertaking, but also in the officials. It was one of the most progressive undertakings of the country. "I would like to see a branch of the Women's Gas Council in Newport," she said. "There is a good one at Cardiff. A large proportion of the women of Newport are interested in improvements in the Gas Industry."

Birmingham Gas Department's War Record

We have received from Mr. A. W. Lee, General Manager and Secretary to the Birmingham Gas Department, a most interesting brochure which he has prepared for issue to employees of the gas undertaking on their return from the Forces. The booklet gives in outline an excellent idea of the progress made by the Department during the war years 1939–45, showing what an essential part it has played on the home front in spite of many difficulties, including damage from enemy air attack. Written in modest vein, the record is full of inspiration.

Enquiries at Calor Gas, Ltd., in Glasgow show that there has been no material change in the position as it applies to firms in this section of the industry. The main difficulty is still the shortage of containers, resulting from the lack of materials and labour, and no material improvement can be anticipated until this position has been improved.

Keith Blackman, Ltd.—In his annual review circulated with the 55th annual report and accounts, covering the year to March 31, Mr. M. Burningham, Chairman and Managing Director, stated that the trading profit of £159,826 showed a decrease of £58,629. The trade tide had turned, due partly to the cancellation of war contracts, and also to the falling off in demand from Government Departments. The special and secret work they had carried out in connexion with warships (including midget submarines), tanks, gliders, barrage balloons, &c., had been highly commended. The net result of the year's operations was that there was an available balance of £179,181, including the amount brought forward, and it was proposed to pay a dividend of 20% and to transfer £10,000 to reserve, bringing the general reserve total to £200,000. Relaxation of controls should tend to help the revival of business on a peacetime basis. This should make it possible in the near future to resume more normal trading conditions, but at the moment their difficulty lay chiefly in the direction of shortage of skilled workers. If trade was to revive quickly, it was essential that the Government should apply itself vigorously to making it possible for firms to secure suitable labour at the earliest date.

Parkinson & Cowan, Ltd.—The 45th annual report records a profit of £41,962 for the year ended March 31, compared with £52,324 for the previous year, and a dividend of 5% has been declared, In his statement circulated to shareholders, Lieut.-Colonel H. W. Woodall, Chairman and Managing Director, stated that the Company's armament output rose from £20,000 in 1938 to an average of about two million pounds in later years, profits on which were cut very fine under Government regulations. In producing tank tracks, jerricans, shells, rocket weapons, airframe components, petrol tanks, fuses, precision instruments, and miniature electronic equipment, they had greatly improved their manufacturing methods and technique, and their outlook had been widened by contact with Government and industrial scientists and engineers with whom thay had co-operated during the war period. The time had come when a costly process of reorganization and re-equipment must be undertaken. This work had already started, but the shortage of staff and man-power made progress lamentably slow. Although the immediate prospects were exceptionally anxious and difficult, they faced the longer future with confidence. There had been a reduction from £181,936 in 1943 to £151,762 for 1944 in the gross earnings of subsidiaries. The net profits of subsidiaries were £56,652, against £70,074 for the previous year. Regarding overseas interests, some recovery had been made in certain sections, but again the amount of labour available was insufficient to enable all plants to operate profitably, and it had been necessary to apply £10,000 of the parent Company's 1944 income to cover the position. Payment of 5% dividend leaves £28,812 to be carried forward, against £31,934 brought in.

COMPANY MEETING

Bombay Gas Company

The Ordinary Meeting of the Bombay Gas Company was held at the Registered Office, Gresham House, Old Broad St., London, E.C. 2, on June 27. Mr. STANLEY HUNTER JONES (Chairman of the Company) presided.

The SECRETARY read the notice convening the meeting, and also the Auditors' Report.

The CHAIRMAN: I assume that you will, as usual, take the accounts as read.

We meet to-day under decidedly brighter conditions than for some years past and we all hope that the world will soon now settle down to peace and happiness. Before dealing with the accounts I must refer to the loss the Company has sustained in the sudden retirement from its service through breakdown of health in July last of our Engineer and Manager, Mr. William T. Lane, who has spent nearly 44 years of his life in the Company's service. Mr. Lane is an outstanding figure in the life of Bombay. He is one of the most popular English residents in India, and is known, liked, and respected by all classes in Bombay. During his long service with the Company he has built up a most friendly feeling on all sides towards the Company, and this goodwill on the part of the general public is, as all must agree, a most valuable asset for the Company, and the Board feel that they owe a great debt to Mr. Lane for his long, faithful, and successful management of the Company's affairs in India. You will, I feel sure, approve of our having made him a suitable retiring allowance. The Board have appointed the Assistant Manager, Mr. L. W. Boulter, Engineer and Manager, in Mr. Lane's place. Mr. Boulter has been for about 15 years in our service.

Turning to the accounts, you will see that we have earned £4,466 less due to increased wages and material having eliminated any advantage obtained from £27,536 increase in total revenue. The net Revenue Account shows a reduction in the amount available for dividend of £46,455, which requires some explanation. The Indian Government recently introduced a "Pay as you Earn" scheme on profits, and we have deemed it prudent to bring into line the United Kingdom Tax on a similar basis. All income tax due, therefore, on past and current profits—that is, to April 5, 1946—has been provided for as far as possible. This act will place the Company on a sounder financial basis than hitherto, the available balance for distribution being thereby unencumbered by unknown debts for income tax.

The Balance Sheet calls for little comment. The liquid assets are some £22,000 less due mainly to the additional demand for Indian income tax—*viz.*, two years' tax in one year, as I have already explained.

Owing to wartime and the continued demand for gas, our plant has been used to the fullest capacity and the Board have found it necessary to place an order for a 1½ million cu.ft. per diem water gas plant to supplement our manufacturing power, and I wish to pay tribute to the great help my colleague Mr. George Evetts has given the Board in planning the technical details connected with this plant in these difficult war years, when it is extremely difficult to obtain such things.

Finally, I would emphasize the soundness of our Company as shown by the low capital expended cost per million cu.ft. of £372, the issued capital being less than £300 per million—actually it is £298—and I venture to say that few companies elsewhere can show such figures. Twenty years ago, when I joined the Board, the gas sales per annum were 375 million cu.ft., and, as you will see in the accounts, the sales last year were 1,055 million cu.ft. It is only right to point out that this figure is the result of the great demand for gas in the war years, but I am hopeful—and I believe that our Manager thinks so too—that a great part of this demand will continue in peacetime. I believe that the industries which have been built up in Bombay will continue for peaceful purposes. The sales of gas in the year 1938, just before the war, were 595 million cu.ft., an increase of some 59% on the 1924 figure—that is, exactly 20 years ago—and an annual average increase during the 20 years of 3%. That is a figure which all technical people in the Gas Industry will find a very convenient one from the engineering point of view, because you do not have to spend large sums of money suddenly to meet increases in demand. It goes on steadily, and you have time to think about things and provide for them.

These are all the remarks I wish to make, but I think there is one other thing I should add, and that is that during the past year or two our accounts have been subject to audit, or survey perhaps, by the Bombay Presidency Government, and a letter we received some months ago dealing with our 1943 accounts paid, I think, rather a flattering tribute to the Company. It observed that our reserves were substantial and that we had not frittered them away—that was the word which was used—in granting bonuses to shareholders and paying excessive dividends. That, from the Indian Government in these days of Congress, and so on, I think must be considered satisfactory. They largely control us now and to have the goodwill of, and, shall I say, such a compliment paid to us by, India should fortify our shareholders in their trust in the future.

(*Continued on p. 27*)

Technical Aspects of the Gas Industry's Contribution to Post-War Housing

By L. W. ANDREW, B.A., B.Sc., A.R.I.C.,
E. W. B. DUNNING, B.Sc., A.R.I.C., and
G. C. HOLLIDAY, B.A.,
Gas Light and Coke Company

Abstract of I.G.E. Comm. 278, presented at the Annual Meeting of the Institution of Gas Engineers, June 12–13

(*Continued from vol. 245, p. 836*)

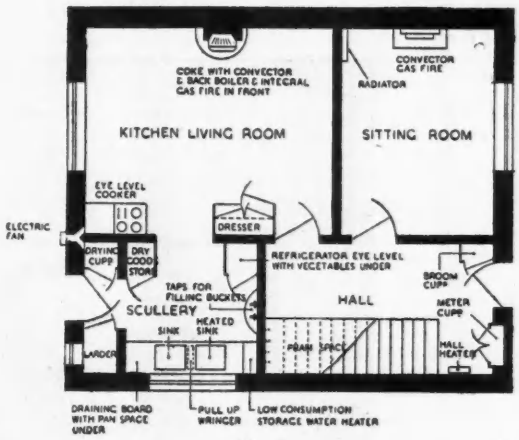
Plan 4.

This plan is of the kitchen living-room type; which is not recommended for districts where gas is available. This plan has, however, been included to show that a gas-coke service can be given, although the resultant lay-out is not as attractive as in the previous plans. The cooker and work space cannot be arranged in the scullery without serious overcrowding.

Hot water is obtained during the winter period from the back boiler attached to an open coke fire fitted in the kitchen-living room; thus there is only one solid-fuel appliance to tend.

Background heating in the kitchen-living room is obtained from a convection unit attached to the coke fire. The coke fire with integral gas ignition incorporates a flued gas fire for use in milder weather. A radiator off the back boiler provides background heating in the sitting room, topping-up being obtained by a convector gas fire. Summer water-heating is obtained from a flueless slow-recovery storage water-heater fitted in the scullery. Gas fires are provided in all bedrooms. A portable bowl fire provides bathroom heating. The hall is heated by a flueless convector. The airing cupboard is heated by the hot-water tank.

The cooker is of the free-standing eye-level horizontal type. A small burner on the hotplate is arranged to heat irons internally. The gas refrigerator is of 3 cu.ft. capacity mounted at eye-level and has vegetable racks underneath. A heated sink is provided next to the normal sink for clothes boiling, with a lifting wringer concealed between the two. A built-in drying cabinet is ventilated by an electric fan, which can alternatively ventilate the vicinity of the cooker to remove cooking smells from the living room. The living room is ventilated by the 9 in. by 9 in. flue for the coke fire and the sitting room by an economy flue.



Plan 4.

The fundamental difference between the various plans is due to the method of obtaining winter hot water. As the hot water is often obtained from a combination appliance which also gives room heating, the running costs of the living-room and kitchen heating and the winter water-heating must be considered together (see Table VI).

Capital costs are not widely different for any of the systems considered.

TABLE VI.—Running Costs of the Living Room and Kitchen Heating and the Water Heating.

Services	1A. £ s. d.	1B. £ s. d.	1C. £ s. d.	1D. £ s. d.	1E. £ s. d.	2. £ s. d.	3. £ s. d.	4. £ s. d. (Sitting room)
Living room heating	2 16 3	2 16 3	—	2 16 3	6 0 0	3 15 0	—	1 17 6
Coke ignition	7 6	7 6	—	7 6	—	—	—	—
Auxiliary room heating	7 6	7 6	7 6	7 6	—	—	11 3	15 0
Kitchen heating	—	—	15 0	1 17 6	1 17 6	—	—	—
Winter water heating	3 18 9	3 13 1½	4 10 0	6 11 3	5 16 3	5 12 6	4 10 0	4 10 0
Coke ignition	1 11	1 1½	7 6	—	—	1 1½	9	7 6
Summer water heating	11 3	11 3	15 0	—	—	1 13 9	2 1 3	2 8 9
		11 3	18 9					
Living room and kitchen heating and water heating. Annual cost	8 3 2	8 8 0	7 13 9	12 0 0	13 13 9	11 2 4½	7 3 3	9 18 9
Average weekly cost	3 1½	3 3	2 11½	4 7½	5 3	4 3½	2 9	3 10

PLAN 1A.—Running Costs.

	30 winter weeks.	9 warm weeks.	13 summer weeks.	Annual usage.	Annual costs. £ s. d.	Weekly Costs. 30 winter weeks. s. d.	9 warm weeks. s. d.	13 summer weeks. s. d.
	2	3	4	5	6	7	8	9
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	15 ,,	—	—	15 ,,	11 3	4½	—	—
Radiant bathroom heater	2½ ,,	—	—	2½ ,,	1 11	1	—	—
Portable gas fire: Living room	5 ,,	5 therms	—	10 ,,	7 6	1½	5	—
Coke fire: Living room, 60 hours per week	25 cwt.	—	—	25 cwt.	2 16 3	1 10½	—	—
Gas ignition for coke fire, 30 × 7 at 10 cu.ft.	10 therms	—	—	10 therms	7 6	3	—	—
Coke boiler (continuous), 30 weeks at 100 lb. per week; 9 weeks at 84 per lb. week. (Lit twice a week, 13 summer weeks)	25 cwt.	7½ cwt.	2½ cwt.	35 cwt.	3 18 9	1 10½	1 10½	5
Gas poker for boiler, 30 at 7 cu.ft. + 9 at 7 cu.ft. + 13 × 2 at 7 cu.ft.	1 therm	½ therm	1 therm	2½ therms	1 11	½	—	1
Sink heater	—	—	—	15 therms	11 3	—	—	10½
Cooker	—	—	—	80 ,,	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 ,,	1 17 6	9	9	9
Wash boiler	—	—	—	10 ,,	7 6	2	2	2
Gas iron	—	—	—	2½ ,,	1 11	½	½	½
Drying cupboard (not fitted)	—	—	—	—	—	—	—	—
Airing cupboard (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 60 cwt. / Gas, 217½ therms	£14 18 3	7 3	4 5	3 6
						Average weekly cost, 5s. 9d.		

Approximate total heat available in 30 winter weeks for space heating, 305 useful therms. Net coal requirement, 4½ tons.

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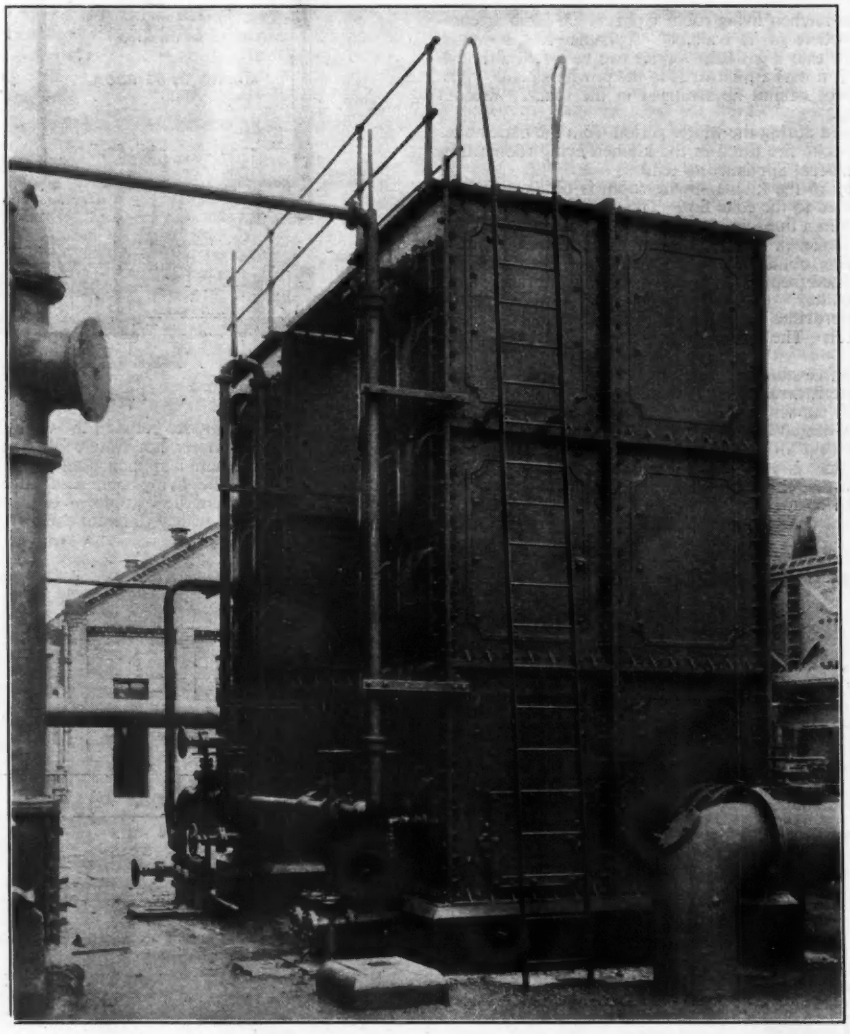

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PLAN 1B—RUNNING COSTS.

1	30 winter weeks. 2	9 warm weeks. 3	13 summer weeks. 4	Annual usage. 5	Annual costs. 6	Weekly Costs. 30 winter weeks. 7	9 warm weeks. 8	13 summer weeks. 9
					£ s. d.	s. d.	s. d.	s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	15 „	—	—	15 „	11 3	4½	—	—
Radiant bathroom heater	2½ „	—	—	2½ „	1 11	1	—	—
Portable gas fire: Living room	5 „	5 therms	—	10 „	7 6	1½	5	—
Coke fire: Living room	25 cwt.	—	—	25 cwt.	2 16 3	1 10½	—	—
Gas ignition for coke fire, 30 × 7 at 10 cu.ft.	10 therms	—	—	10 therms	7 6	3	—	—
Coke boiler (continuous), 30 weeks at 100 lb. per week; 9 weeks at 84 lb. per week	25 cwt.	7½ cwt.	—	32½ cwt.	3 13 1½	1 10½	1 10½	—
Gas poker for boiler, 30 at 7 cu.ft. + 9 at 7 cu.ft.	1 therm	½ therm	—	1½ therm	1 1½	½	—	—
Sink heater	—	—	15 therms	15 therms	11 3	—	—	10½
Circulator for baths	—	—	15 „	15 „	11 3	—	—	10½
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 „	1 17 6	9	9	9
Wash boiler	—	—	—	10 „	7 6	2	2	2
Gas iron	—	—	—	2½ „	1 11	½	½	½
Drying cupboard (not fitted)	—	—	—	—	—	—	—	—
Airing cupboard (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 57½ cwt. / Gas, 231½ therms	£15 3 1	7 3	4 5	3 10½

Average weekly cost, 5s. 10d.

Approximate total heat available in 30 winter weeks for space heating, 305 useful therms. Net coal requirement, 4½ tons.

PLAN 1C.—RUNNING COSTS.

1	30 winter weeks. 2	9 warm weeks. 3	13 summer weeks. 4	Annual usage. 5	Annual costs. 6	Weekly Costs. 30 winter weeks. 7	9 warm weeks. 8	13 summer weeks. 9
					£ s. d.	s. d.	s. d.	s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	15 „	—	—	15 „	11 3	4½	—	—
Radiant bathroom heater	2½ „	—	—	2½ „	1 11	1	—	—
Portable gas fire: Living room	5 „	5 therms	—	10 „	7 6	1½	5	—
Convector fire: Kitchen (warm air also obtained from coke fire)	20 therms	—	—	20 „	15 0	6	—	—
Coke fire with back boiler: Living room	40 cwt.	—	—	40 cwt.	4 10 0	3 0	—	—
Gas ignition for coke fire, 30 × 7 at 10 cu.ft.	10 therms	—	—	10 therms	7 6	3	—	—
Storage sink heater	—	10 therms	15 therms	25 „	18 9	—	10	10½
Small open-type bath heater	—	10 „	10 „	20 „	15 0	—	10	7
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 „	1 17 6	9	9	9
Wash boiler	—	—	—	10 „	7 6	2	2	2
Gas iron	—	—	—	2½ „	1 11	½	½	½
Drying cupboard (not fitted)	—	—	—	—	—	—	—	—
Airing cupboard (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 40 cwt. / Gas, 265 therms	£14 8 10	6 11½	4 2½	3 7

Average weekly cost, 5s. 6d.

Approximate total heat available in 30 winter weeks for space heating, 285 useful therms. Net coal requirement, 3¾ tons.

PLAN 1D.—RUNNING COSTS.

1	30 winter weeks. 2	9 warm weeks. 3	13 summer weeks. 4	Annual usage. 5	Annual costs. 6	Weekly Costs. 30 winter weeks. 7	9 warm weeks. 8	13 summer weeks. 9
					£ s. d.	s. d.	s. d.	s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector) for 3 coldest weeks (continuous)	15 „	—	—	15 „	11 3	4½	—	—
Radiant bathroom heater	2½ „	—	—	2½ „	1 11	1	—	—
Portable gas fire	5 „	5 therms	—	10 „	7 6	1½	5	—
Coke fire	25 cwt.	—	—	25 cwt.	2 16 3	1 10½	—	—
Gas ignition for coke fire	10 therms	—	—	10 therms	7 6	3	—	—
Convector gas fire: Kitchen	50 „	—	—	50 „	1 17 6	1 3	—	—
Quick-recovery storage water heater (intermittent)	110 „	30 therms	35 therms	175 „	6 11 3	2 9	2 6	2 0
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 „	1 17 6	9	9	9
Wash boiler	—	—	—	10 „	7 6	2	2	2
Gas iron	—	—	—	2½ „	1 11	½	½	½
Drying cupboard (not fitted)	—	—	—	—	—	—	—	—
Airing cupboard heater	—	—	—	10 therms	7 6	2	2	2
				Coke, 25 cwt. / Gas, 435 therms	£19 2 7	9 6	5 2½	4 3½

Average weekly cost, 7s. 4d.

Approximate total heat available in 30 winter weeks for space heating, 230 useful therms. Net coal requirement, 4½ tons.

PLAN 1E.—RUNNING COSTS.

	30 winter weeks.	9 warm weeks.	13 summer weeks.	Annual usage.	Annual costs.	Weekly Costs. 30 winter weeks.	9 warm weeks.	13 summer weeks.
1	2	3	4	5	6 £ s. d.	7 s. d.	8 s. d.	9 s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	25 „	—	—	25 „	18 9	7½	—	—
Radiant bathroom heater	2½ „	—	—	2½ „	1 11	1	—	—
Convector fire: Kitchen	50 „	—	—	50 „	1 17 6	1 3	—	—
Convector fire: Living room	150 „	10 therms	—	160 „	6 0 0	3 9	10	—
Multipoint water heater (intermittent)	95 „	25 „	35 therms	155 „	5 16 3	2 4½	2 1	2 0
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 „	1 17 6	9	9	9
Wash boiler	—	—	—	10 „	7 6	2	2	2
Gas iron	—	—	—	2½ „	1 11	½	½	½
Drying cupboard (not fitted)	—	—	—	—	—	—	—	—
Airing cupboard heater	—	—	—	10 therms	7 6	2	2	2
				Gas, 565 therms	£21 3 10	10 10½	5 2½	4 3½

Average weekly cost, 8s. 2d.

Approximate total heat available in 30 winter weeks for space heating, 215 useful therms. Net coal requirement, 3¾ tons.

PLAN 2.—RUNNING COSTS.

	30 winter weeks.	9 warm weeks.	13 summer weeks.	Annual usage.	Annual costs.	Weekly Costs. 30 winter weeks.	9 warm weeks.	13 summer weeks.
1	2	3	4	5	6 £ s. d.	7 s. d.	8 s. d.	9 s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating: radiator off coke boiler	—	—	—	—	—	—	—	—
Living room; convector gas fire supplemented by radiator off coke boiler	97 therms	3 therms	—	100 therms	3 15 0	2 5	3	—
Bathroom heating: towel rail off coke boiler	—	—	—	—	—	—	—	—
Coke Boiler	42½ cwt.	7½ cwt.	—	50 cwt.	5 12 6	3 2	1 10½	—
Gas poker for boiler, 39 weeks at 7 cu.ft.	1 therm	½ therm	—	1½ therms	1 1½	½	—	—
Circulator; all summer water-heating (intermittent)	—	—	45 therms	45 „	1 13 9	—	—	2 7
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (3 cu.ft.)	—	—	—	65 „	2 8 9	11	11	11
Built-in washing machine	—	—	—	10 „	7 6	2	2	2
Iron heater	—	—	—	4 „	3 0	½	½	½
Drying cupboard	—	—	—	15 „	11 3	2½	2½	2½
Airing cupboard heater (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 50 cwt. / Gas, 340¼ therms	£18 7 10½	8 7½	4 7½	5 1

Average weekly cost, 7s. 1d.

Approximate total heat available in 30 winter weeks for space heating, 335 useful therms. Net coal requirement, 4¾ tons.

PLAN 3.—RUNNING COSTS.

	30 winter weeks.	9 warm weeks.	13 summer weeks.	Annual usage.	Annual costs.	Weekly Costs. 30 winter weeks.	9 warm weeks.	13 summer weeks.
1	2	3	4	5	6 £ s. d.	7 s. d.	8 s. d.	9 s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	15 „	—	—	15 „	11 3	4½	—	—
Bathroom heater: towel rail off hot-water tank	—	—	—	—	—	—	—	—
Portable gas fire used in living room and kitchen	10 therms	5 therms	—	15 therms	11 3	3	5	—
Openable stove with back boiler	40 cwt.	—	—	40 cwt.	4 10 0	3 0	—	—
Gas ignition for openable stove, 30 at 7 cu.ft.	1 therm	—	—	1 therm	9	—	—	—
Small multipoint (22 weeks)	—	25 therms	30 therms	55 therms	2 1 3	—	2 1	1 8½
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (1½ cu.ft.)	—	—	—	50 „	1 17 6	9	9	9
Wash boiler	—	—	—	10 „	7 6	2	2	2
Iron heater	—	—	—	4 „	3 0	½	½	½
Drying cupboard	—	—	—	15 „	11 3	2½	2½	2½
Airing cupboard heater (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 40 cwt. / Gas, 265 therms	£14 8 9	6 5½	4 10	4 0½

Average weekly cost, 5s. 6d.

Approximate total heat available in 30 winter weeks for space heating, 270 useful therms. Net coal requirement, 3¾ tons.

PLAN 4.—RUNNING COSTS.

	30 winter weeks.	9 warm weeks.	13 summer weeks.	Annual usage.	Annual costs.	Weekly Costs. 30 winter weeks.	9 warm weeks.	13 summer weeks.
1	2	3	4	5	6 £ s. d.	7 s. d.	8 s. d.	9 s. d.
Gas fire: Bedroom No. 1 / Gas fire: Bedroom No. 2 / Gas fire: Bedroom No. 3	20 therms	—	—	20 therms	15 0	6	—	—
Hall heating (convector)	15 „	—	—	15 „	11 3	4½	—	—
Bathroom heater, bowl fire	2½ „	—	—	2½ „	1 11	1	—	—
Sitting room convector fire to supplement radiator	45 „	5 „	—	50 „	1 17 6	1 1½	5	—
Gas fire in living room	10 „	10 therms	—	20 „	15 0	3	10	—
Coke fire with convector and back boiler	40 cwt.	—	—	40 cwt.	4 10 0	3 0	—	—
Gas ignition of coke fire	10 therms	—	—	10 therms	7 6	3	—	—
Slow recovery storage water heater (intermittent)	—	30 therms	35 therms	65 „	2 8 9	—	2 6	2 0
Cooker	—	—	—	80 „	3 0 0	1 2	1 2	1 2
Refrigerator (3 cu.ft.)	—	—	—	65 „	2 8 9	11	11	11
Built-in heated sink	—	—	—	10 „	7 6	2	2	2
Iron heater	—	—	—	4 „	3 0	½	½	½
Drying cupboard	—	—	—	15 „	11 3	2½	2½	2½
Airing cupboard (hot-water tank)	—	—	—	—	—	—	—	—
				Coke, 40 cwt. / Gas, 356½ therms	£17 17 5	8 1	6 3	4 6

Average weekly costs, 6s. 11d.

Approximate total heat available in 30 winter weeks for space heating, 310 useful therms. Net coal requirement, 4½ tons.

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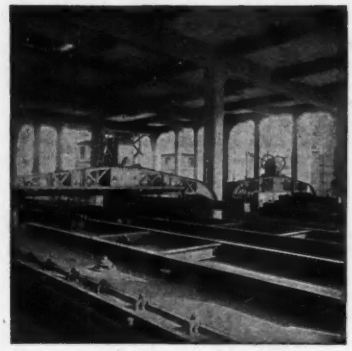

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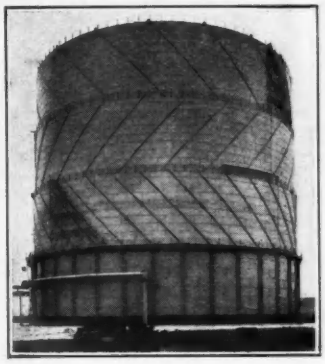

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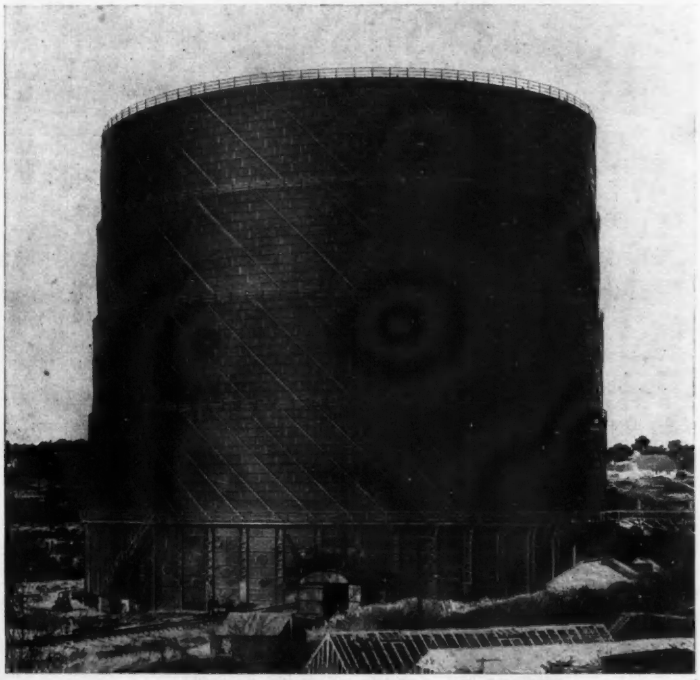

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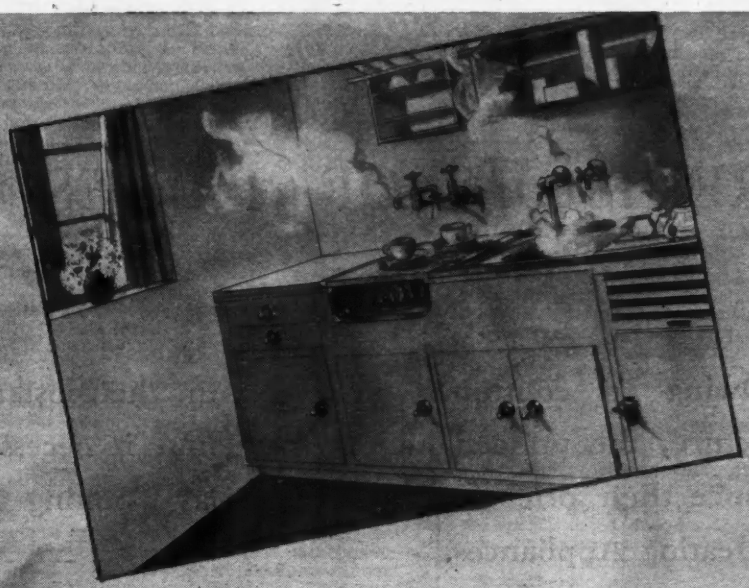

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REVISION OF PRICES

Owing to continued increases in the costs of manufacture, the undersigned Makers find it necessary to advance their prices for Domestic Gas Cooking and Space Heating Appliances.

After notification to the Central Price Regulation Committee the increases which will apply to all despatches on and after Monday, July 9th, 1945, will be as follows:

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The average weekly cost of these services—namely, water heating, living room and kitchen heating—varies from 2s. 9d. for Plan 3 up to 5s. 3d. for Plan 1E. The plans may be divided into three groups. In Plans 1C, 3 and 4 a coke appliance with back boiler provides living-room heating and winter water-heating. In Plans 1A and 1B a coke fire provides room heating and a coke boiler provides winter hot water. In Plans 1D and 1E, gas is used throughout the year for hot water. Plan 2 is intermediate between these last two groups, as gas is used for topping-up living-room heating and a coke boiler for winter hot water and background heating in the living room.

Group 1: Plans 3, 1C *and* 4.—Weekly cost 2s. 9d., 2s. 11½d. and 3s. 10d. respectively.

There is only one coke appliance to tend, only one kind of coke to be stored, and the running costs are the lowest (note in Plan 4 the running costs are higher as the topping-up heating of the sitting room is by a convector gas fire). Continuous background heating is provided in Plan 3, but in Plans 1C and 4 the open coke fire, although more attractive in appearance, cannot normally be kept in all night. The hot-water service of this group is not as reliable as that of the other groups.

Group 2: Plans 1A *and* 1B.—Weekly cost 3s. 1½d. and 3s. 3d. respectively.

Separate coke appliances for living-room heating and for winter hot water and continuous background heating give more precise control than the combined appliances used in Group 1. There are, however, two coke appliances to tend and two kinds of coke to store. In Plan 1A the coke boiler provides baths in summer, and overheating of the kitchen will then occur.

Group 3: Plans 2, 1D *and* 1E.—Weekly cost 4s. 3½d., 4s. 7½d. and 5s. 3d. respectively.

In Plan 2 gas replaces coke for living-room heating. In Plan 1D gas replaces coke for winter water-heating. In Plan 1E gas replaces coke for all services, giving a fully automatic service and the maximum saving of labour at an increased running cost. While Plan 2 does not give the fully automatic water-heating service of 1D and 1E, it does give a higher standard of background heating.

IVd. Examples of Gas and Coke Installations: Variations in Standards

The plans and running costs previously shown may be criticized by some as giving a standard much above pre-war, and by others as not providing the fullest service suggested in the Codes of Functional Requirements. Table VII gives estimated running costs using the same plans for three standards of service in the South of England—namely:

A service comparable with that commonly found in small suburban houses pre-war, with a hot-water standard of 220 gall. per week, but very much better than that obtained by most of the lower income groups.

A service meeting Codes of Functional Requirements in all respects, with the lower hot water standard of 220 gall. per week. This standard of service is identical with that shown in the plans in Sections IVb and IVc except that the drying cabinet has been omitted from plans 2, 3 and 4, and the 3 cu.ft. refrigerator in plans 2 and 4 has been replaced by a 1½ cu.ft. model.

A service meeting the Codes of Functional Requirements in all respects with the higher hot water standard of 350 gall. and a drying cabinet and a larger refrigerator are included.

For the pre-war suburban house standard, comprising 220 gall. of hot water per week, adequate comfort in the living room, kitchen and bedrooms, and cooking, washing, and ironing, the total running cost could be 1s. 2d. per week below the average cost of 5s. 6d. previously spent on an inferior service based largely on coal (Plan 3); even with full-price gas, the labour-saving and automatic service of an all-gas house could be obtained at only 1s. 5d. above this figure (Plan 1E). At Kensal House the cost of heating, cooking and lighting was found to average 4s. 4d. per week (including 1s. 7d. per week for coke). It has been calculated that excluding lighting but including extra hot water to give the 220-gall. standard the total cost with full price gas would be 4s. 7d. per week.[96]

If to this pre-war suburban-house standard be added extra background heating in the hall and bathroom and a 1½ cu.ft. refrigerator, the standard of the Codes could be obtained for an increase in weekly cost in all cases of about 1s.

The higher standard of service suggested by the Codes with 350 gall. of hot water per week, adequate comfort throughout the house, cooking, 3 cu.ft. capacity refrigerator, and full laundry service of washing, drying, ironing and airing, could be obtained for as little as 8d. per week above the 5s. 6d. previously spent (Plan 3). The cost increases as the labour-saving increases, reaching a maximum with full-price gas of 10s. per week (Plan 1E). Although the majority would choose the cheaper services based on a combination of gas and coke, there will be many to whom the extra cost of a fully automatic labour-less service may be well worth while; but general adoption of the most labour-saving systems would depend very largely on tariff policy.

VI. Conclusions

Analysis of the new suggested standards for domestic heat services in post-war homes has shown that with suitable combinations of gas and coke they can be attained with little or no increase in running cost over that of the old standards with the old fuel systems. Both fuels are smokeless, and general adoption of this form of heat service would make a major contribution to the solution of the atmospheric pollution problem, to national conservation of coal and to labour-saving in the home.

For these reasons all new dwellings should be provided with facilities for using gas and coke. Higher standards of heating and hot water usages cannot be enforced, but if facilities are available, the more they are likely to be used.

Estimates of fuel consumptions based on practical tests have been given in considerable detail in the hope that they may arouse discussion, and make some contribution to the shaping of the Gas Industry's policy. In all cases the gas consumptions quoted are much higher than those commonly found pre-war among low income groups because there is insufficient realization of the economy with which gas, even at full price, can be used for between-season heating and summer water heating. Both these off-peak loads are of very great importance to the Industry, and there is particular need for education of consumers on the labour-saving value and low cost of gas for these purposes.

It is realized that the expansion of the Gas Industry to meet the proposed higher standards of living will be gradual, as the consumer has to be educated to appreciate that if gas and coke are used these standards are economically practicable. The tremendous output of appliances for post-war needs will also necessarily be spread over a number of years.[3, 63] It seems clear, however, that there should be a very large increase in gas and coke consumption compared with pre-war.

Thanks are due to colleagues at Watson House for assistance in the preparation of this Paper, in particular Miss J. T. Houghton for the house plans and Messrs. E. E. Blandon and H. T. Wright for the preparation of Appendix 3. Thanks are also due to the Governor and Directors of the Gas Light and Coke Company for permission to publish the Paper.

(*To be concluded*)

TABLE 7.—*Running Costs of Combinations of Gas and Coke*

Standard of Domestic Heat Service	Services	1A		1B		1C		1D		1E		2		3		4	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Small suburban pre-war house with hot water standard of 220 gal. per week.	Living room and kitchen heating and water heating (see Table 6)		£ s. d. 8 3 2		£ s. d. 8 8 0		£ s. d. 7 13 9		£ s. d. 12 0 0		£ s. d. 13 13 9		£ s. d. 11 2 4½		£ s. d. 7 3 3		£ s. d. 9 18 9
	Cooking	£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0		£ s. d. 3 0 0	
	Wash boiler	7 6		7 6		7 6		7 6		7 6		7 6		7 6		7 6	
	Ironing	2 0		2 0		2 0		2 0		2 0		2 0		2 0		2 0	
	Bedroom heating	15 0		15 0		15 0		15 0		15 0		15 0		15 0		15 0	
			4 4 6		4 4 6		4 4 6		4 4 6		4 4 6		4 4 6		4 4 6		4 4 6
	Total annual cost		12 7 8		12 12 6		11 18 3		16 4 6		17 18 3		15 6 10½		11 7 9		14 3 3
	Average weekly cost		4 9		4 10		4 7		6 3		6 11		5 10½		4 4½		5 5
Meeting Codes of Functional Requirements with hot-water standard of 220 gal. per week.	Small suburban pre-war house		12 7 8		12 12 6		11 18 3		16 4 6		17 18 3		15 6 10½		11 7 9		14 3 3
	Hall heating	£ s. d. 11 3		£ s. d. 11 3		£ s. d. 11 3		£ s. d. 11 3		£ s. d. 18 9		£ s. d. —		£ s. d. 11 3		£ s. d. 11 3	
	Bathroom heating	1 11		1 11		1 11		1 11		1 11						1 11	
	1·5 cu. ft. refrigerator	1 17 6		1 17 6		1 17 6		1 17 6		1 17 6		1 17 6		1 17 6		1 17 6	
	Airing cupboard heater	—		—		—		7 6		7 6		—		—		—	
			2 10 8		2 10 8		2 10 8		2 18 2		3 5 8		1 17 6		2 8 9		2 10 8
	Total annual cost		14 18 4		15 3 2		14 8 11		19 2 8		21 3 11		17 4 4½		13 16 6		16 13 11
	Average weekly cost		5 9		5 10		5 6½		7 4		8 2		6 7½		5 3½		6 5
Meeting Codes of Functional Requirements with hot-water standard of 350 gal. per week, larger refrigerator and drying cabinet.	As above		14 18 4		15 3 2		14 8 11		19 2 8		21 3 11		17 4 4½		13 16 6		16 13 11
	Extra cost of 350 gals. of hot water instead of 220 gals.*	£ s. d. 4 6		£ s. d. 9 0		£ s. d. 1 2 6		£ s. d. 2 12 6		£ s. d. 3 15 0		£ s. d. 15 0		£ s. d. 18 9		£ s. d. 1 2 6	
	Extra cost of 3-cu. ft. refrigerator instead of 1·5-cu. ft.	11 3		11 3		11 3		11 3		11 3		11 3		11 3		11 3	
	Drying cabinet	11 3		11 3		11 3		11 3		11 3		11 3		11 3		11 3	
			1 7 0		1 11 6		2 5 0		3 15 0		4 17 6		1 17 6		2 1 3		2 5 0
	Total annual cost		16 15 4		16 14 8		16 13 11		22 17 8		26 1 5		19 1 10½		15 17 9		18 18 11
	Average weekly cost		6 3½		6 5½		6 5		8 10		10 0½		7 4½		6 1		7 4

* Coke cannot be easily regulated to give less than the 350-gal. hot-water standard; thus no increase in coke consumption is needed to obtain this higher hot-water standard whereas the gas consumption will increase (see Table 4).

NOTE: COL. 15, LINE 7, SHOULD READ 1 2 6; COL. 16, LINE 10, 2 5 0; LINE 11, 15 16 1; LINE 12, 6 2.

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COMPANY MEETING continued.

I conclude my remarks now, and I will move:

"That the Report of the Directors and the Audited Statement of Accounts for Dec. 31, 1944, presented to the meeting be, and the same are hereby received, approved, and adopted."

I will ask the Deputy Chairman, Mr. Arthur M. Paddon, to second the adoption, after which I shall be pleased to deal with any questions that may be put.

Mr. ARTHUR M. PADDON (Deputy Chairman) seconded the adoption of the motion.

There being no questions, the motion was put to the meeting and carried unanimously.

The CHAIRMAN then proposed: "That a final dividend for the year ended Dec. 31, 1944, of 4½% (less income tax at the rate of 5s. in the £) be now declared payable on and after July 5, 1945, making, with the interim dividend of 3½% (less income tax), a dividend of 8% (less income tax) for the year 1944."

Mr. ARTHUR M. PADDON seconded.

The motion was carried unanimously.

Mr. ARTHUR M. PADDON moved: "That the retiring Directors, Mr. Stanley Hunter Jones and Mr. George Evetts, being eligible and offering themselves for re-election, be hereby re-elected accordingly."

In doing so, he said he did not suppose there was ever a time in the history of the Gas Industry which called for such a close support of special technical knowledge and experience. These were very troublous times and there was a good deal of doubt surrounding the future, which was precarious and difficult. If, therefore, the shareholders could secure the support of these two gentlemen with their special qualifications and long experience and with their record of success in the administration of this and other companies, they would be wise to do so.

Mr. B. M. GILL seconded.

The motion was carried unanimously.

The CHAIRMAN, expressing his appreciation of his re-election to the Board and for the continued confidence of the shareholders, said it was a pleasure to him to see this Company, which his forebears had something to do with, grow and strengthen as the years passed on.

Mr. GEORGE EVETTS also thanked the meeting for his re-election.

Mr. R. H. GLEN moved: "That Mr. Alfred Morland, F.C.A., and Mr. Frederick John Bradfield, F.C.I.S., be reappointed auditors for the ensuing year at the same remuneration as heretofore."

Mr. S. F. FIELD seconded.

The motion was carried.

The CHAIRMAN, proposing a vote of thanks to the staffs of the Company in Bombay and in London, said he did so with mixed feelings because they had lost, as he had already stated, Mr. Lane, their old and faithful Manager. It was a great personal regret to the Board to lose contact with a man whom they had known for so long. He had already spoken of Mr. Lane's exceptional services to the Company, and he had also learned from private sources how affectionately the public of Bombay felt towards Mr. Lane. He was known as Billy Lane, and when Mr. Lane wrote to him after his resignation he sent various newspaper cuttings all speaking of the deep respect there was for Billy Lane. The Company had had a very great loss, but the shareholders would be pleased to know that they had provided Mr. Lane with what it was hoped was a satisfactory retiring allowance.

Then there were the other officers out in India. In Mr. Boulter they had a very good officer, and the Board had had no hesitation in appointing him to succeed Mr. Lane. As to the other staff, they had lost during the past year their Lighting Superintendent, Mr. Blackmore, a most faithful officer. All the staff out there had had more than a score of years' service, but the staff was now sadly diminished in strength and the Board was now considering applications from new entrants into the Company's service—Mr. Evetts and himself were dealing with them that afternoon. He was sure the shareholders would wish to pass a cordial vote of thanks to the staff in Bombay for good and faithful service and for the great success of their efforts. In London the staff was only three strong, but in Mr. Comber they had an official of 40 years' service, and Mr. Bush, the Accountant, had been with the Company for between 30 and 40 years. The latest recruit, Miss Cox, was also working most satisfactorily and the London work was carried on very efficiently.

Mr. GEORGE EVETTS, in seconding the vote of thanks to the staff, endorsed everything the Chairman had said. From personal experience he could say that even in peacetime the staff had a strenuous task, and in wartime it had been more so.

The vote of thanks was cordially given.

The SECRETARY (Mr. Comber) expressed appreciation of the vote of thanks, and said he knew from experience that the staff did their work not only as a duty, but, if he might say so, because of their love for the Company.

Mr. R. H. GLEN moved a vote of thanks to the Chairman and Directors for their work during recent strenuous times. The Balance Sheet reflected immense credit on everyone connected with the Company, and he assured the Chairman and Board that the shareholders were very grateful to them.

Mr. H. KING HILLER seconded.

The vote of thanks was cordially given.

The CHAIRMAN acknowledged the vote of thanks, and the proceedings of the ordinary general meeting closed.

Extraordinary General Meeting

An Extraordinary General Meeting followed immediately after the ordinary general meeting, the Chairman, Mr. S. H. JONES, again presiding.

The SECRETARY read the notice convening the meeting.

The CHAIRMAN said that the proposal to convert the shares into stock was with the object of bringing the Company up to date. It was better to have stock than share transactions. The other proposal was to fortify the power the Board already had to grant pensions to their employees and dependents. He called on Mr. Blyth, the Company's Solicitor, to explain the proposals in detail.

Mr. T. BLYTH said that with regard to the proposal to convert shares into stock, as companies grew older, dealings in shares threw an intolerable burden on the secretarial staff, who had to check every share and every certificate when share transactions took place. That was all right in a small company or a new company, but in a larger company it was very hard on the staff. That was the only object of the first resolution.

As regards the second resolution dealing with the alteration of the Articles of Association, the shareholders knew that the offices of the Company were burned down and he believed that every single copy of the Articles of Association—with one exception—was lost. The shareholders were entitled to ask for copies, so that it was necessary to have the Articles reprinted, but as they were being reprinted the Board came to the conclusion that the opportunity might be taken to bring them up to date. They were based on an earlier Act which was repealed in 1929, but the references were wrong, and there were various small matters in which company law had changed since the passing of the 1929 Act. Actually, however, there was nothing in the changes now proposed which affected the sense of the Articles. No new powers were taken except on one point on which Mr. Stanley Jones was rather keen—*viz.*, that there should be inserted express powers to pay pensions to retiring servants. Personally, he had advised Mr. Jones that it did not affect the sense of the Articles, because he believed that every company had the right to pay retiring allowances in order to get the best service out of its employees. But there was no harm in putting it in, and as the Articles were being reprinted it was thought this might as well be done.

The CHAIRMAN then moved: "That the 300,000 shares of the Company of £1 each which have been issued and are fully paid up, be converted into £300,000 Stock of the Company."

Mr. ARTHUR M. PADDON (Deputy-Chairman) seconded, and the resolution was carried unanimously.

The CHAIRMAN next moved the following Special Resolution: "That the Articles of Association now submitted to the meeting and identified by the signature of the Chairman of the Company be and they are hereby adopted as the Articles of Association of the Company in place of the existing Articles."

Mr. ARTHUR M. PADDON (Deputy-Chairman) seconded, and the motion was carried unanimously.

This closed the business of the Extraordinary General Meeting.

Dingwall Town Council has decided by seven votes to six to adopt electricity for street lighting in place of gas.

A Comprehensive Exhibition of industrial gas appliances was held at the Long Eaton Gas Company's premises in Nottingham Road, Long Eaton, from June 23 to 30. Appliances were seen in operation, and included heat treatment furnaces, metal melting furnaces, profiling machinery, central heating boilers, complete dairyman's sterilizing outfit, infra-red tunnel furnace, and Baker Perkins conversion burners for bakers' ovens.

Nottingham Gas Department has fitted up a post-war house at the rear of the Parliament Street showrooms, with the dual object of making its own contribution to the problems of planning and layout, and suggesting fuel services which might be installed in such a home. The house, of which the ground floor only has been built, is of the three-bedroom type.

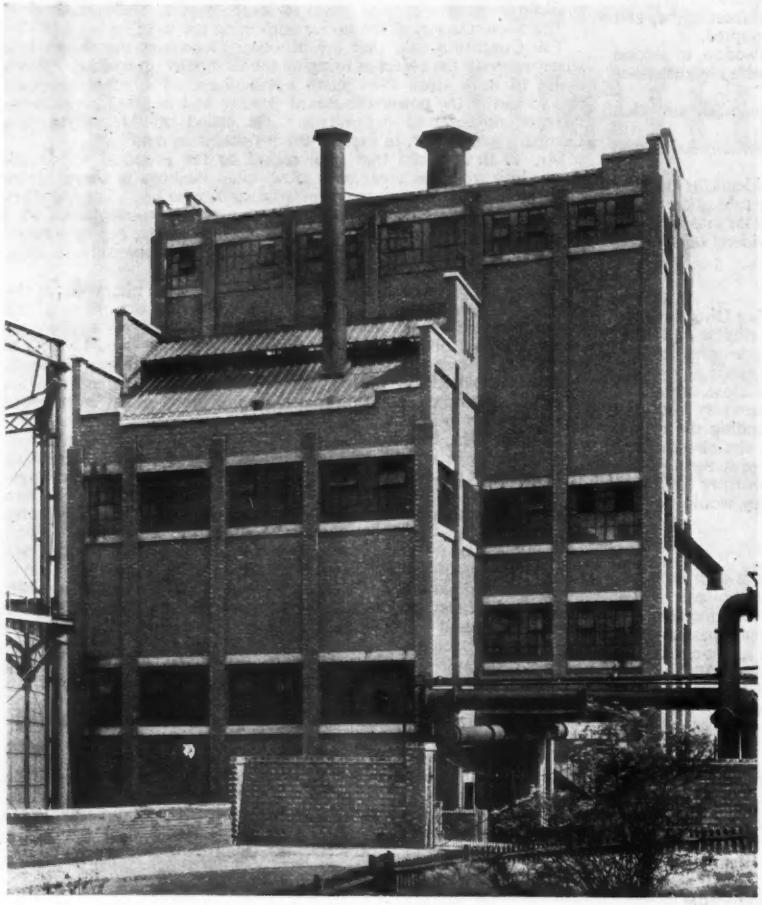
New Proposals are contained in a Supplement to Mr. Robert Foot's "Plan for Coal" just issued by the Mining Association of Great Britain. It is proposed that:

There shall be an Electoral Body for the purpose of appointing the members of the Central Board (other than the Chairman).

In certain circumstances there shall be provision for appeal by individual colliery undertakings against decisions by the Central Board.

An Arbitral Tribunal shall be established by Parliament, to whom (*a*) consumers could have recourse, if aggrieved by provisions of a selling scheme or action taken under a selling scheme; (*b*) workers could appeal in matters not falling within the jurisdiction of the existing conciliation machinery culminating in the Porter Tribunal; (*c*) the Coal Commission could refer allegations that coal was not being mined with due regard to conservation in the national interest; (*d*) the Minister of Fuel and Power could refer for investigation and report any matter in which the Central Board appeared to be failing in its responsibilities.

The exercise of the financial powers of the Central Board shall be limited initially and increased only with the approval of the Arbitral Tribunal.



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ARCHITECTURAL FEATURES

From the layman's point of view, perhaps the most interesting feature is the attempt to produce in an essentially industrial building a pleasing architectural appearance. The steel frame-work of the building has been encased in brickwork, and the coal-receiving annexe and coke hoppers are built as integral features of the main building. A liberal use has been made of steel-framed windows for producing maximum natural lighting and ventilation. Parapets with "Snowcrete" coping form a pleasing finish to the skyline. Rain-water pipes are not visible, being taken down internally. The full effect of the building when viewed from Desborough Road is masked to some extent by the abutment of the old horizontal retort house, but when this is dismantled and the new retort house extended it will appear as an independent and symmetrically designed structure.

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GAS PRODUCTS PRICES

The London Market July 2.

There are no changes to report in the prices of Coal Tar Products.

As from March 5, by the Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), the maximum price of Pitch for briquetting has been increased to 60s. per ton f.o.r. supplying works, and the prices for Road Tar, as fixed by the Coal Tar Products Prices Order, 1943, S R. & O. No. 1528, have been increased by one half-penny per gallon. There is also an increase of 5s. per ton in the price of standard Creosote/Pitch Mixture.

The only change to report in connexion with the prices of Coal Tar Products is the coming into effect on June 11 of a new Government Order increasing the prices of Coal Tar Spirits. This Order is entitled the Control of Benzole and Coal Spirit Order, 1945 (S. R. & O. 1945, No. 681).

Control of Toluene (No. 4) Order, 1944 (S. R. & O. 1944, No. 170), contains an amendment of the Control of Toluene (No. 3) Order, 1943.

Coal Tar Products Prices (No. 2) Order, 1944 (S. R. & O., 1944, No. 1051), allows increases in the maximum prices for all forms of Naphthalene.

The Provinces July 2.

The average prices of gas-works products during the week were : Pitch and Crude Tar,* Toluole, naked, North, 90's. 2s. 4d. to 2s. 6½d., pure, 3s. 2½d. (now controlled by S. R. & O. 1945, No. 681), operative from June 11, 1945. Benzole and Coal Spirit, also Coal Tar Naphtha and Xylole, are now controlled by the Control of Benzole and Coal Spirit Order, 1945, dated June 1, 1945, S. R. & O. 1945, No. 681, operative from June 11, 1945. Carbolic acid, 60's, anthracene, creosote oil (hydrogenation), coal tar oils (timber preservation, &c.), and strained anthracene oil controlled by the Coal Tar Products Prices Order, 1943, dated Oct. 20, 1943 (S. R. & O. 1943, No. 1528), operative from Nov. 15, 1943, Naphthalene now controlled under S. R. & O. 1944, No. 1051, operative from Sept. 22, 1944.

Attention is called to Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), referred to on p. 305, "JOURNAL" of March 7.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Scotland June 30.

Quietly steady conditions continue. Refined tar*: Yield to distillers is 5d. per gallon *ex* Works, naked. Creosote oil: Timber preserving quality,* 5½d. to 6½d.; hydrogenation oil,* 5¾d.; low gravity or virgin oil,† 7¼d. to 7½d.; benzole absorbing oil,* 6½d. to 8d. per gallon. Refined cresylic acid* is 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha†: 7d. to 8d. per gallon. Solvent naphtha*: Basic prices delivered in bulk, 90/160 grade, 2s. 10d., and 90/190 Heavy naphtha, Unrectified, 2s. 0½d.; Rectified, 2s. 4d. per gallon. Pyridine†: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

* Price controlled. † Uncontrolled.

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GAS STOCKS AND SHARES

The volume of business in the stock markets was a little heavier last week than the previous week, and although the tone remained firm, investors generally still remain somewhat apathetic. Doubtless this outlook will continue until the results of the General Election are known. There was a quiet investment support for British Funds, while a few specialities in the industrial section gained ground—textile shares being the most prominent.

The Gas market also remained quiet, but with the exception of the reactions in Imperial Continental and Primitiva Holdings all the other changes were in an upward direction. A feature occurred in the Supplementary List with the sharp rise of 15 points in Tunbridge Wells 4% sliding scale stock to 142½, a parcel changing hands during the week at 140.

The following were the price changes during the week ending on Thursday last:

OFFICIAL LIST

Bournemouth 7 p.c. max	160—165	+2
British 5½ p.c. "B" Cum. Pref. (*x.d.*)	115—120	June 25
Colombo 7 p.c. Pref.	23/6—25/6	+1/–
Croydon 5 p.c. Deb. (*x.d.*)	125—130	June 25
East Surrey 5 p.c. Deb. (*x.d.*) ..	124—129	,,
Imperial Continental Ord.	120—125	–2
Mid-Southern Utility 4 p.c. Pref. ...	102—105	+1
Montevideo Ord.	90—93	+1
Oriental	167—172	+2
Primitiva Holdings	11/9—12/9	–1/6d.
Southampton Ord.	108—112	+2½

SUPPLEMENTARY LIST

Croydon 4 p.c. Deb. (*x.d.*)	100—105	June 25
East Surrey 6 p.c. Pref.	128—133	+8
Newport (Mon.) 5 p.c. Deb. (*x.d.*)	120—125	June 25
Romford 4 p.c. Deb.	98—103	+1
Tunbridge Wells 4 p.c.	140—145	+15

PROVINCIAL EXCHANGES

Newcastle 3½ p.c. Deb. (*x.d.*) ...	100½—102½	June 25
,, 3½ p.c. Red. Deb. (*x.d.*)	96½—98½	,,

Quotations on the London and Provincial Stock Exchanges

OFFICIAL LIST

Issue. £	When ex-Dividend.	Dividends Interest. Amnt. or Rate% Prev. Hf. Yr. Actual.	Last Hf. Yr. Actual.	NAME.	Quotations June 28
1,767,439	March 12	20/–	20/–	Alliance & Dublin Ord. ...	114—119
891,664	May 7	6d.	6d.	Assocd. Gas & Water U'd'ts Ord.	23/—24/–
388,938	,,	7½d.	7½d.	Do. Deferred	23/6—24/6
500,000	March 12	2½	2½	Do. 4½ p.c. Red. Cum. Pref.	21/—22/–
535,545	,,	2	2	Do. 4 p.c. Red. Cum Pref.	20/—21/–
341,966	,,	2	2	Do. 4 p.c. Irred. Cum. Pref.	19/3—20/3
561,370	Feb. 19	70/–	70/–	Barnet Ord. 7 p.c.	162—167
300,000	June 11	8¾d.	10¾d.	Bombay, Ltd.	41/—44/–
690,407	Feb. 5	70/–	70/–	Bournemouth 7 p.c. max. ...	160—165
362,025	Dec. 11	2	2	Do. 4 p.c. Deb. ...	102—107
659,955	March 5	25/–	57/–	Brighton, &c., 5 p.c. Con. ...	108—113
855,000	,, 12	60/–	60/–	Brit. Gas Light Ord.	132—137
545,000	June 25	2½	2½	Do. 5½ p.c. 'B' Cum. Pref.	115—120
120,000	,, 18	2	2	Do. 4 p.c. Red. Deb.	95—100
10,000	April 23	9/–	4/6	Cape Town, Ltd., 4½ p.c. Cu. Pf.	6—7
626,860	Feb. 12	70/–	70/–	Cardiff Con. Ord.	125—130
24,500	June 4	8½d.	8½d.	Colombo 7 p.c. Pref.	23/6—25/6
764,169	March 19	4.78d.	4.78d.	Colonial Gas Assn. Ltd. Ord. ..	16/6—18/6
400,000	,,	7.649d.	7.649d.	Do 8 p.c. Pref. ...	22/—24/–
1,748,090	July 22 '40	30/–	30/–	Commercial Ord.	63—68
620,000	June 4	1½	1½	Do. 3 p.c. Deb.	74—79
286,344	Feb. 19	2½	2½	Do. 5 p.c. Deb.	112—117
807,560	,,	60/–	60/–	Croydon sliding scale	124—129
644,590	,,	50/–	50/–	Do. max. div.	107—110
620,385	June 25	2½	2½	Do. 5 p.c. Perp. Deb. ...	125—130
179,500	Feb. 12	50/–	50/–	East Surrey 'B,' 5 p.c.	103—108
176,461	June 25	2½	2½	Do. 5 p.c. Deb. (Irred.)...	124—129
239,135	Nov. 13	6d.	6d.	Gas Consolidation Ord. 'A' ...	22/3—23/3
350,000	,,	4½	4½	Do. Ord. 'B' ...	22/3—23/3
250,000	May 7	2	2	Do. 4 p.c. Red. Cum. Pref.	18/6—20/6
19,101,877	Feb. 19	6d.	6d.	Gas Light & Coke Ord. ...	22/—23/–*a*
2,600,000	,,	35/–	35/–	Do. 3½ p.c. max.	81½—84½
4,477,106	,,	2	2	Do. 4 p.c. Con. Pref. ...	102—105
2,993,000	Jan. 8	1¾	1¾	Do. 3¾ p.c. Red. Pref. ...	101½—104½
8,602,497	May 28	1¾	1¾	Do. 3 p.c. Con. Deb. ...	88—91
3,642,770	,,	2½	2½	Do. 5 p.c. Red. Deb. ...	106—109
3,500,000	,,	2½	2½	Do. 4½ p.c. Red. Deb. ...	106—109
700,000	March 12	1¾	1¾	Do. 3½ Red. Deb. ...	99—101
5,600,000	May 28	—	†£10	Imperial Continental Cap. ...	120—125
43,820	Jan. 29	1¾	1¾	Do. 3½ p.c. Red. Deb. ...	97—100
2,167,410	Feb. 12	50/–	60/–	Liverpool Ord.	127—130
231,978	,, 19	50/–	50/–	M.S. Utility 'C' Cons.	110—115
918,657	,,	2	2	4 p.c. Cons. Pref.	102—105
675,000	April 30	‡40/–	‡40/–	Montevideo, Ltd.	90—93
300,000	,, 23	£6	£4	Oriental, Ltd.	167—172
368,537	June 11	50/–	57/6	Plymouth & Stonehouse 5 p.c.	113—118
621,667	Feb. 5	72/6	72/6	Portsmouth & Gosport Cons.	157—162
2,381,363	May 15/'44	†9¾d.	†9¾d.	Primitiva Holdings, Ltd. Ord.	11/9—12/9
233,900	Dec. 11	3	3	Do. 6½ p.c. Red. Cum. Pref.	99—104
648,999	Sept. 11	6½	6½	Severn Val. Gas Cor. Ld. Ord.	23/9—24/9
597,972	March 12	2½	2½	Do. 4½ p.c. Cum. Pref. ...	21/6—22/6
2,528,714	May 14	3¾d.	6d.	South East'n Gas Cn. Ld. Ord.	22/—23/–
1,000,000	Feb. 26	2½	2½	Do. 4½ p.c. Red. Cum. Pref.	21/9—22/9
1,068,869	,, 2	2	2	Do 4 p.c. Irred. Cum. Pref.	20/—21/–
5,709,895	Feb. 12	†20/–	†40/–	South Met. Ord.	87½—90½
1,135,812	,,	3	3	Do. 6 p.c. Irred. Pref. ...	127—132
850,000	,,	2	2	Do. 4 p.c. Irred. Pref. ...	101—104
1,895,445	Jan. 2	1½	1½	Do. 3 p.c. Perp. Deb. ...	87—90
1,000,000	,, 15	2½	2½	Do. 5 p.c. Red. Deb. ...	103—108
1,543,795	Feb. 5	50/–	50/–	South Suburban Ord. 5 p.c ...	117—122
512,825	,,	2½	2½	Do. 5 p.c. Perp. Pref. ...	113—118
500,000	,,	2	2	Do. 4 p.c. Perp. Pref. ...	100—105
250,000	,,	1¾	1¾	Do. 3¾ p.c. Red. Pref. ...	93—98
888,587	June 11	2½	2½	Do. 5 p.c. Perp. Deb. ...	123—128
750,541	Feb. 5	50/–	50/–	Southampton Ord.	108—112
350,000	,, 12	2½	2½	Swansea 5½ p.c. Red. Pref. ...	105—110
1,076,490	,, 26	50/–	50/–	Tottenham & District Ord. ...	121—126
338,555	,,	2½	2½	Do. 5 p.c. Pref.	113—118
453,380	June 11	2	2	Do. 4 p.c. Perp. Deb. ...	100—105
1,247,505	,,	7½d.	6d.	U. Kingdom Gas Cor. Ord. ...	23/—24/–
1,085,952	May 14	5½d.	5½d.	Do. 4½ p.c. 1st Cum. Pref. ...	23/—24/–
772,709	,,	4¼d.	4¼d.	Do. 4 p.c. 1st Red. Cum.Pref.	19/9—20/9
745,263	June 18	5½d.	5½d.	Do. 4½ p.c. 2nd Non.Cum. Pf.	20/6—21/6
1,200,000	March 19	1¾	1¾	Do. 3½ p.c. Red. Deb. ...	97—102
380,608	May 7	66/3	66/3	Uxbridge, &c., 5 p.c.	125—130
1,371,138	Feb. 12	50/–	50/–	Wandsworth Consolidated ...	122—127
2,525,768	,,	2	2	Do. 4 p.c. Pref.	103—106
1,343,964	June 18	2½	2½	Do. 5 p.c. Deb.	125—130
383,745	,,	2	2	Do. 4 p.c. Deb.	100—105
558,342	Feb. 12	50/–	50/–	Watford & St. Albans Ord. ...	122—127

SUPPLEMENTARY LIST

Issue. £	When ex-Dividend.	Dividends Interest. Amnt. or Rate% Prev. Hf. Yr. Actual.	Last Hf. Yr. Actual.	NAME.	Quotations June 28
351,685	June 18	2½	2½	Brighton, &c., 5 p.c. Perp. Deb.	123—128
415,250	,,	2	2	Bristol Gas Co., 4 p.c. New Deb.	101—104
140,205	Feb. 12	70/–	70/–	Cambridge, &c., 7 p.c. Cons. 'B'	143—148
295,932	March 12	50/–	50/–	Cheltenham, 5 p.c. Cons.Ord....	110—115
42,500	June 18	2	2	Do. 4 p.c. Perp. Deb....	100—105
150,000	Feb. 19	2	2	Croydon Gas, 4 p.c. Pref. (Irr.)	100—105
130,000	June 25	2	2	Do. 4 p.c. Deb. ...	100—105
53,220	Feb. 12	3	3	East Surrey, 6 p.c. Cum. Pref....	128—133
...	Aug. 19 '40	40/–	40/–	Eastbourne, 'B' 3½ p.c..... ..	97—102
117,425	March 1	—	£6	East Wight Cons. 5 p.c. ...	100—105
25,000	June 18	2½	2½	Guildford 4½ p.c. Red. Deb. ...	100—105
156,600	Feb. 19	50/–	50/–	Hampton C't's, 5 p.c. Cons. Ord.	100—105
18,000	May 28	—	£7	Malta & Med'n., 7 p.c. 1st Pref.	85—95
10,845	,,		£7½	Do. 7½ p.c. 2nd Pref.	85—95
50,000	Feb. 19	52/3	52/3	Mid. South. Util., 'A' Cons. 5 p.c.	107—112
70,380	June 25	2½	2½	Newport (Mon.), 5 p.c. Deb....	120—125
65,000	April 30	2½	2½	North Middlesex, 5 p.c. Pref....	110—115
70,000	March 12	2½	2½	Plymouth & Stone., 5 p.c. Deb.	124—129
76,501	June 18	2	2	Reading, 4 p.c. Perp. Deb. ...	97—102
74,777	April 3	2	2	Romford, 4 p.c. Debs. (Reg.) ...	98—103
21,000	June 11	2½	2½	Slough, 5 p.c. Perp. Deb. ...	122—127
211,740	,, 18	2½	2½	Southampton, 5 p.c. Red. Deb.	105—110
363,575	Jan. 2	2½	2½	Tottenham, 5 p.c. Reg. Red. Mt.	100—103
202,019	April 23	75/–	75/–	Tunbridge Wells, 4 p.c. Scale ...	140—145
135,257	June 11	2½	2½	Uxbridge &c., 5 p.c. Perp. Deb.	123—128

PROVINCIAL EXCHANGES

					Quotations June 22
804,948	March 5	2½	2½	Bath Cons.	114—116
122,577	Feb. 19	2½	2½	Blyth 5 p.c Ord.	124—126
1,667,250	,, 12	2½	2½	Bristol, 5 p.c. max.	120½—121
120,420	June 18	2	2	Do. 1st 4 p.c. Deb.	102—104
415,250	,,	2	2	Do. 2nd 4 p.c. Deb. ...	101½—103½
3 28,790	,,	2½	2½	Do. 5 p.c. Deb.	122—124
157,150	Feb. 12	3½	3½	Chester 5 p.c. Ord.	115—117
52,500	June 18	2	2	Do. 4 p.c. Cum. Pref. ...	99—101
40,000	,,	2	2	Do. 4 p.c. Non. Cum. Pref.	99—101
36,430	,,	1½	1½	Do. 3½ p.c. Deb.	88—92
41,890	,,	2	2	Do. 4 p.c. Red. Deb. ...	100—102
542,270	Feb. 12	3	4½	Derby Cons.	135—140
55,000	June 18	2	2	Do. 4 p.c. Deb.	97—102
40,000	Feb. 19	5½	5½	Exeter 10 p.c.	185—195
10,000	,,	5	5	Great Grimsby 'A' Ord. ...	175—185
6,500	,,	5	5	Do. 'B' Ord. ...	175—185
79,000	,,	5	5	Do. 'C' Ord. ...	165—175
732,000	Feb. 19	2	2	Hartlepool G. & W. Cn. & New	92—94
490,681	June 18	1½	1½	Liverpool 3½ p.c. Red. Deb. Stk.	95—100
245,500	,,	2	2	Do. 4 p.c. Red. Deb. Stk.	102—103
306,083	Jan. 2	2	2	Do. 4 p.c. Deb.	103—105
680,000	June 4	2½	2½	Do. 5 p.c. Red. Stk. ...	104—109
20,000	,,	2½	2½	Long Eaton 5 p.c. Pref.	9—11
80,000	,,	2½	2½	Do. 5 p.c. Deb.	117—122
2,430,267	Feb. 12	6d.	6.9d.	Newcastle and Gateshead Con.	26/3—26/9*a*
682,856	,,	2	2	Do. 4 p.c. Pref.	103½—105½
776,706	June 25	1½	1½	Do. 3½ p.c. Deb.	100½—102½
250,000	,,	1½	1½	Do. 3½ p.c. Red. Deb. ...	96½—98½
73,186	April 23	2	2	Do. 4 p.c. Red. Deb. ...	102—104
106,280	Feb. 15	5	5	Preston 'A' 10 p.c.	170—175
188,219	,,	3½	3½	Do. 'B' 7 p.c.	132—135
1,806,339	Feb. 25	3½	3½	Sheffield Cons.	151—153
95,000	Jan. 2	2	2	Do. 4 p.c. Deb.	98—102
332,351	Feb. 5	3	3	Sunderland 6 p.c. max. ...	121—123
192,150	,, 12	2½	2½	Weston-super-Mare Cons. ...	113½—115½
64,338	Jan. 2	2	2	Do. 4 p.c. Deb.	99—101
33,340	,,	3½	3½	Do. 7½ p.c. Deb.	145—150

a.—The quotation is per £1 of Stock. * Ex. div. † For year. ‡ Paid free of income-tax.

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APPOINTMENTS VACANT

None of the situations advertised in these columns relates to a man between the ages of 18 and 50 inclusive or a woman between the ages of 18 and 40 inclusive, unless he or she is excepted from the provisions of the Control of Engagement Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.

BOROUGH OF DARWEN

(GAS DEPARTMENT)

DEPUTY ENGINEER AND MANAGER

APPLICATIONS are invited for the Position of DEPUTY ENGINEER AND MANAGER at a Salary of £390, rising, subject to satisfactory service, to £405 by one annual increment of £15, plus Whitley Council Scale of Bonus (at present £59 16s.).

The successful applicant will be considered for transfer to next higher grade of Whitley Council Scale if services satisfactory.

Applicants should be Chartered Gas Engineers with experience in the control of gas and by-product manufacturing processes, the maintenance of gas-works plant, and the control of men. Experience in the manufacture of Carburetted Water Gas, Benzole, and Concentrated Ammonia will be considered an advantage.

Applications, stating Age, present Position, Experience, Qualifications, and position with regard to the Essential Works (General Provisions) Order and Military Service, accompanied by *copies* of not more than three recent Testimonials, to be delivered to the undersigned not later than July 9, 1945, and should be endorsed "Deputy Engineer and Manager."

Town Clerk's Office, Darwen. CHARLES COUTTS BYERS, Town Clerk.

June 18, 1945.

APPLICATIONS are invited for the Position of ENGINEER AND MANAGER of the Shotley Bridge and Consett District Gas Company. Applicants must be qualified Gas Engineers and have experience in development of Sales. Salary based on Institution of Gas Engineers' scale.

Applications, enclosing *copies* of three Testimonials, stating Age, and position under the Essential Works Order and National Service Acts, to be addressed to the Chairman at Gas Offices, Thomas Street, Consett, not later than July 11, 1945.

WANTED.—Experienced GASFITTER, who should have a knowledge of fixing Water Heating apparatus. A knowledge of fixing gas-fired Central Heating installations is also desirable.

Standard rate of wages 1s. 9½d. per hour for 47 hours per week, plus out allowance of 10s. 6d. per week.

The position is permanent for a suitable man.

Apply in writing to The Engineer and Manager, The Conway Gas Company, Ltd., Castle Street, Conway.

June 25, 1945.

BOROUGH OF BATLEY

(GAS DEPARTMENT)

ASSISTANT ENGINEER AND MANAGER

APPLICATIONS are invited for the Position of ASSISTANT ENGINEER AND MANAGER at the Batley Gas-Works.

Applicants must be fully qualified and have a thorough training with practical experience of Gas Manufacture and Works Management.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, stating Age, Qualifications, Experience and Salary Required, and accompanied by *copies* of three recent Testimonials, must be delivered to the undersigned not later than July 14, 1945.

Town Hall, Batley, Yorks. T. E. CRAIK, Town Clerk.

THORNTON CLEVELEYS URBAN DISTRICT COUNCIL

(GAS DEPARTMENT)

APPLICATIONS are invited for the Position of DISTRIBUTION SUPERINTENDENT to the above Council at a commencing Salary of £225 per annum, rising in two annual increments to £250 per annum plus cost of living bonus (at present £49 8s. per annum). Candidates must have experience in all branches of gas distribution, including relevant clerical work and control of workmen.

Applications, stating Age, Qualifications and Experience, together with *copies* of two recent Testimonials and endorsed "Distribution Superintendent," must be received by me on or before July 11, 1945.

Council Offices, Fleetwood Road, Thornton, Blackpool, Lancs. J. RONALD WYLDE, Clerk to the Council.

June 19, 1945.

SHEFFIELD AND DISTRICT GAS COMPANY

APPLICATIONS are invited for the Position of GENERAL FOREMAN of the Meter Repair Department. Wages, £6 10s. per week. Applicants should have had practical experience in the construction of all classes of wet and dry meters for both domestic and industrial purposes and be able to control workmen. There is a Co-Partnership scheme to which the appointed person would be eligible after approved service.

Applications, stating Age, Qualifications and Particulars of Training, together with the applicant's position in relation to the Essential Works Order and the National Service Acts, and accompanied by two recent Testimonials to Ralph Halkett, Director and General Manager, Commercial Street, Sheffield, 1.

WEST RIDING GROUP OF GAS COMPANIES

JUNIOR TECHNICAL ASSISTANT

APPLICATIONS are invited for the position of JUNIOR TECHNICAL ASSISTANT to the above Group of Companies. Applicants must have practical experience in the operation of Gas-Works Plant, in Drawing Office work, and the usual chemical tests applicable to a Gas-Works. They must hold the Higher Grade Gas Engineering Certificate of The Institution of Gas Engineers.

Commencing Salary £325 per annum plus War Bonus, at present £74 15s.

Applications, giving full details of Age, Training, Qualifications and Experience, stating position under E.W.O., together with *copies* of two recent Testimonials, must reach the undersigned not later than July 18, 1945.

West Riding Group of Gas Companies, Warrengate, Wakefield. ALEXANDER MCDONALD, B.Sc., A.R.T.C., A.R.I.C., M.Inst.Gas E., General Manager.

The Ministry of Labour and National Service have given permission under the Control of Engagement Order, 1945, for the advertisement of this vacancy.

WEST RIDING GROUP OF GAS COMPANIES

WORKS SUPERINTENDENT

APPLICATIONS are invited for the position of WORKS SUPERINTENDENT at the Wakefield Works. A sound general knowledge of gas-works practice and practical experience with machine-charged horizontal retorts is essential.

Commencing salary £312 per annum, plus War Bonus, at present £74 15s.

Applications, giving full details of Age, Training, Qualifications and Experience, stating position under the E.W.O., together with *copies* of two recent Testimonials, must reach the undersigned not later than July 18, 1945.

West Riding Group of Gas Companies, Warrengate, Wakefield. ALEXANDER MCDONALD, B.Sc., A.R.T.C., A.R.I.C., M.Inst.Gas E., General Manager.

The Ministry of Labour and National Service have given permission under the Control of Engagement Order 1945, for the advertisement of this vacancy.

TWO qualified GASFITTERS required by Gas Undertaking in North Wales, must be experienced in installation and maintenance of gas water heaters.

Rate of pay 1s. 10.9575d. per hour for 47 hour week. State position under the Essential Works Order. Apply to No. 9444, "GAS JOURNAL," 51, High Street, Esher, Surrey.

MANUFACTURERS of Gas Works Control Equipment of all types require full time services of qualified GAS ENGINEER with gas-works experience to keep contact with the Industry and to assist in design work. Must be able to handle correspondence on technical and commercial matters. Write, stating Age, Experience, Qualifications, Salary required and when available. Applications from qualified men from the Services welcomed.

Address, No. 9445, "GAS JOURNAL," 51, High Street, Esher, Surrey.

IMPORTANT FIRM of Tar Distillers require GENERAL WORKS MANAGER with full knowledge of tar distillation and refining of tar products, organizing ability and progressive outlook. State, in confidence, Age, Experience, and Salary required to No. 9448, "GAS JOURNAL," 51, High Street, Esher, Surrey.

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FOR SALE.—Cylindrical Receiver 30 ft. by 7 ft. dia.; 100 lb.; Cornish Boiler, 3,300 lb., evaporation 140 lb. w.p.; Weir Feed Pump 8¼ in. by 6 in. by 13 in.; Weir Feed Pumps (2) 5 in. by 3 in. by 6 in.; Weir Service Pump 6,300 g.p.h.; 7 h.p., 25 h.p., and 40 h.p. Crossley Gas Engines; Tangye 3-Throw Ram Pump 5 in. by 8 in.

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WANTED.—New or second-hand Vertical steam driven GAS COMPRESSOR set, 50,000 cubic feet of gas per hour at 5-10 lb. per square inch, steam pressure 60 lb.

Address, J. C. Cotterill, Manager, The Gas-Works, St. Austell.

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(GAS DEPARTMENT)

TENDERS are invited for the following:

(*a*) CAST-IRON MAINS: 187 yards, 12 in.; 407 yards, 10 in.; 977 yards, 8 in.; and sundry specials.

(*b*) MAINLAYING: The laying of the above-mentioned mains.

(*c*) GOVERNOR: The supply and erection of a 12 in. Governor, including the necessary valves.

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Council Offices, Brigg, Lincs. JOSEPH J. MAGRATH, Clerk of the Council.

COMPANY NOTICE

SOUTH SUBURBAN GAS COMPANY

NOTICE IS HEREBY GIVEN that the TRANSFER BOOKS relating to the ORDINARY AND PREFERENCE STOCKS of this Company WILL BE CLOSED from the 13th July, 1945, to 26th July, 1945, both days inclusive.

Chief Office: Lower Sydenham, S.E. 26. By Order, D. L. HORLOCK, Secretary.

June 28, 1945.

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LARGE quantities of good rough Breeze required by factors paying own Railway Tolls. Price and particulars to No. 9378, "GAS JOURNAL," 51, High Street, Esher, Surrey.

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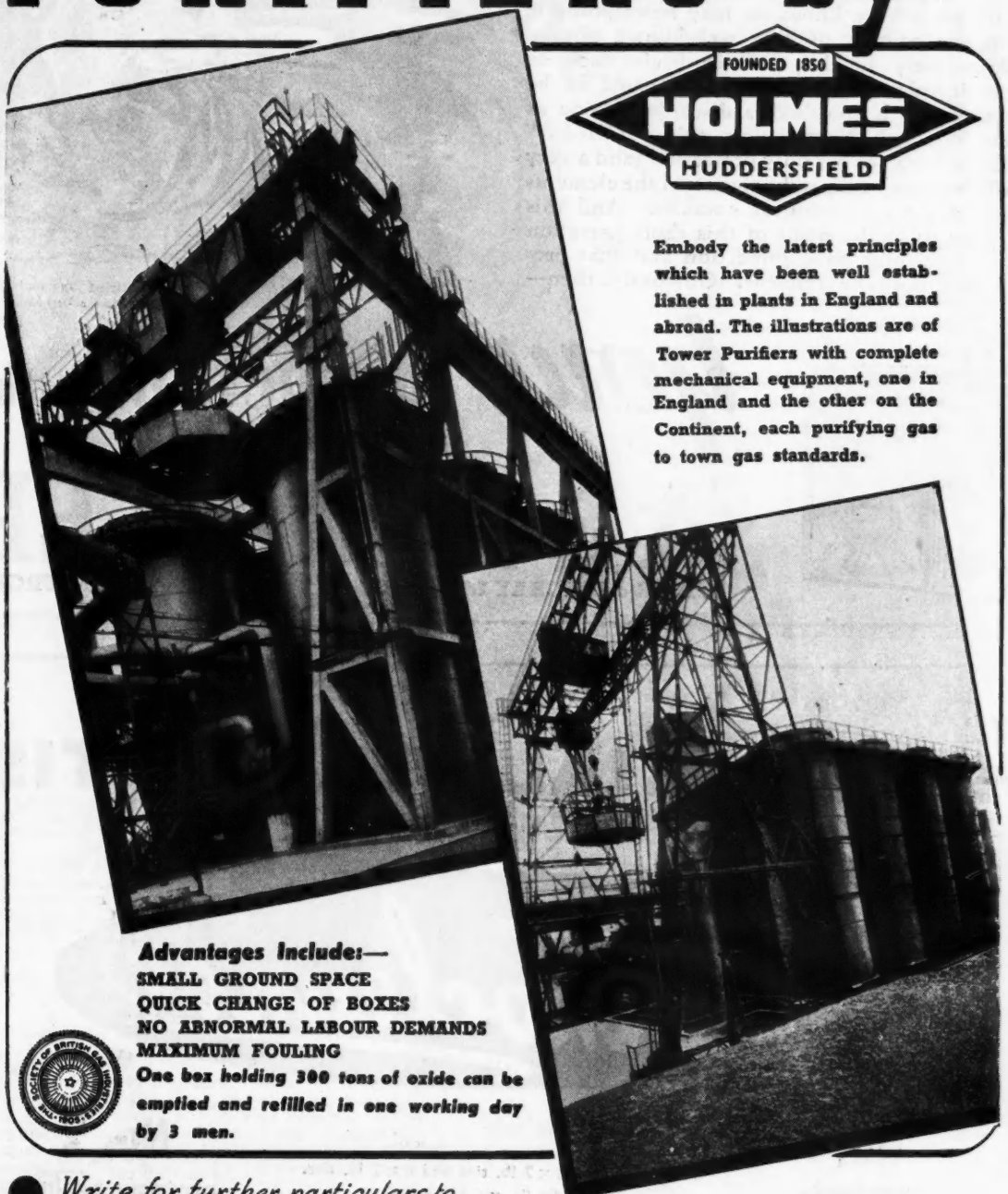

Embody the latest principles which have been well established in plants in England and abroad. The illustrations are of Tower Purifiers with complete mechanical equipment, one in England and the other on the Continent, each purifying gas to town gas standards.

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SMALL GROUND SPACE
QUICK CHANGE OF BOXES
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One box holding 300 tons of oxide can be emptied and refilled in one working day by 3 men.

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C 236

Protection—

The Hermit Crab is literally "a poor fish," and for all we know, he may be responsible for the coining of that well-known phrase. Apparently he has neither brains nor—to put it vulgarly—guts! Else how could he be content with somebody's discarded abode as his lodging? Nevertheless, this "discarded" abode becomes his only protection (and a very efficient one) against the rigours of the elements and against his natural enemies. And this brings us to the point of this short narration . . . you must have protection and that protection must be efficient. Obviously, then—

HERMIT CRAB. A variety of crab that lives in mollusc's cast-off shell to protect its shell-less hinder parts.

your protection is the 'A & M' METER

ALDER & MACKAY LTD., NEW GRANGE WORKS, EDINBURGH, 11

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INDUSTRIAL DERMATITIS

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Sternocleanse

No. 1
protects against
PAINT, GREASE, SPIRITS OIL, Etc.

Supplied in 12 × 2 lb. tins and 6 × 7 lb. tins.
Also 28 lb. and 1 cwt. kegs.

For abnormal conditions special grades can be supplied.

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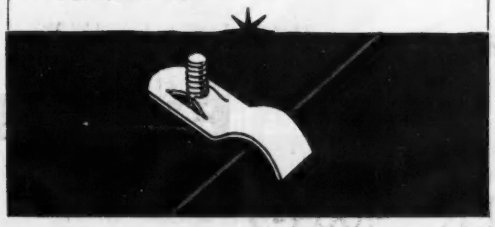
THAT'S Fixed THAT! You may say the NB 1455 is obvious. So it is once it exists—like a lot of other good ideas. The Spire nut device is made part of the component and so these cable clips are screwed direct to their base without need of separate washer or nut. The NB 1455 was developed for a Government Department but it has found wide uses throughout industry.



WHEN you adopt some form of Spire fixing for a light assembly job, you certainly save weight. For one thing you won't need washers. For another the Spire nut is lighter than an ordinary nut. And if we can make the Spire device part of the component you won't even need a Spire nut. You may say that weight saving in your case is a minor matter any way. But is it a minor matter to cut out all tha. fiddling and fumbling with nuts and washers? Is the saving in cost a minor matter? Or the strength and permanence of the fixing?

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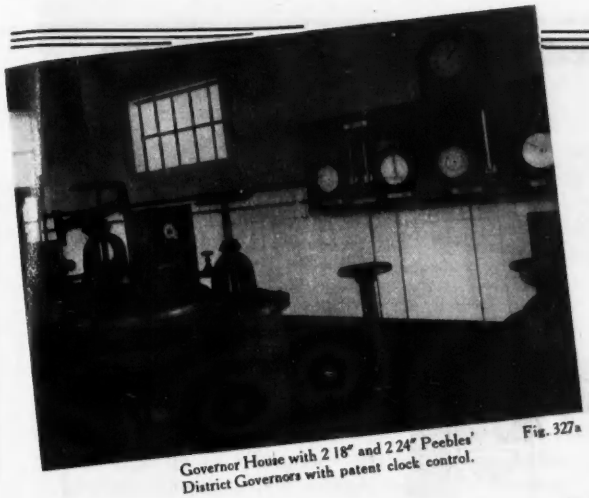

Governor House with 2 18" and 2 24" Peebles' District Governors with patent clock control. Fig. 327a

Peebles

CLOCK-LOADED DISTRICT GOVERNORS

Beyond re-winding the clocks once a week these clock-controlled Peebles Diaphragm District Governors need no attention. Changes in the loading are effected automatically at stated intervals, day and night.

The saving in labour (and in wages) is obvious. Clocks are set to function to a pre-arranged timetable. As Sunday's load differs from that of weekdays a cam cut to suit the Sabbath load comes into action midnight and retires 24 hours later.

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The long lasting tools for speedy, efficient and accurate hole boring

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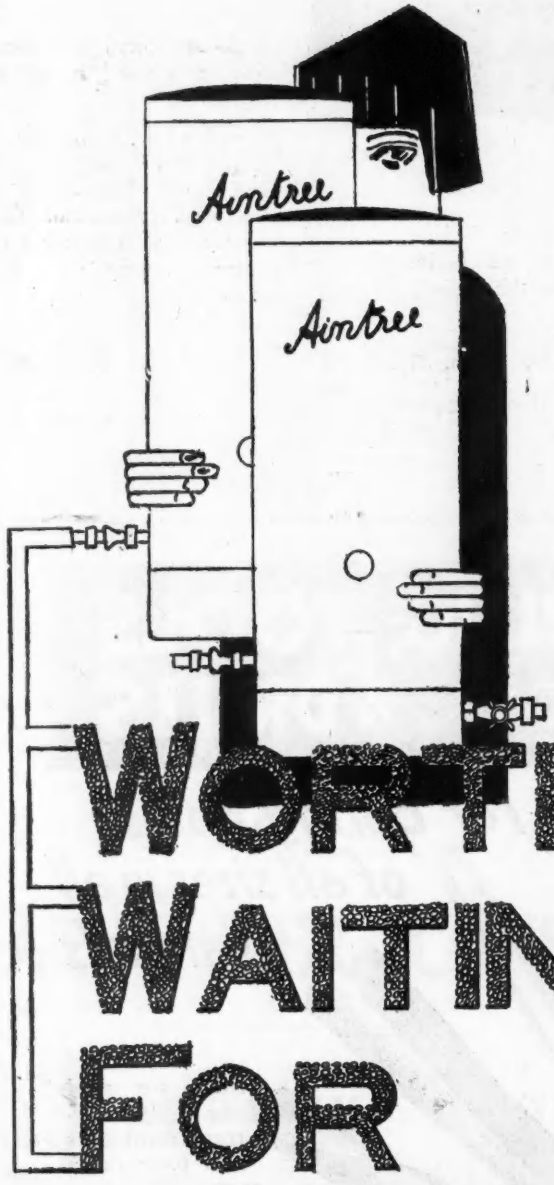

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MILL LANE OLD SWAN
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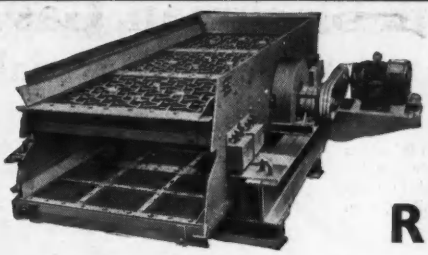

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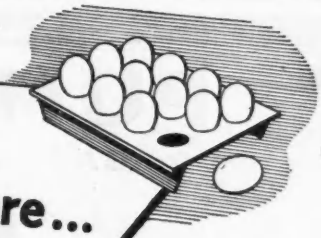

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Modern stream-lined cabinet type cookers with closing cover top; attractive and practical.
Vulcan Regulator, providing Automatic Oven Heat Control.
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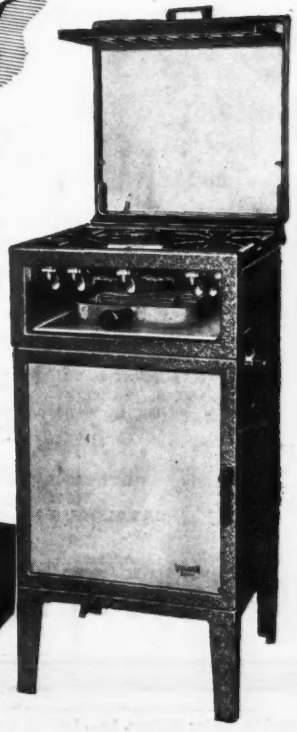
Porcelain enamel Finish.



VULCAN Stoves

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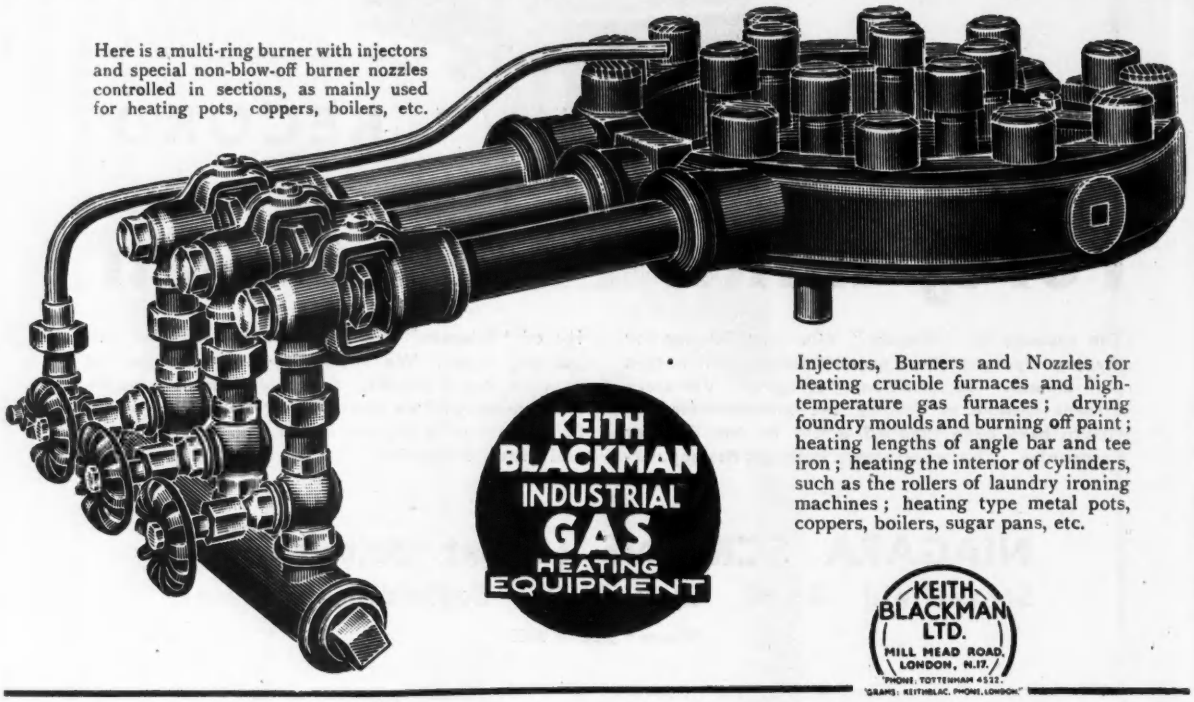
There are "Keith Blackman" Gas Injectors, Burners and Nozzles for almost every industrial heating requirement

Here is a multi-ring burner with injectors and special non-blow-off burner nozzles controlled in sections, as mainly used for heating pots, coppers, boilers, etc.



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PUMPS
FOR GAS WORKS

Fig. 105
LIFT PUMP FOR GAS SYPHONS. EXCLUDING 24 FT. DEEP

Fig. 256
BELT DRIVEN SINGLE RAM PUMP FOR 40 LBS. PER SQ. INCH.

Fig. 257
BELT DRIVEN SINGLE GUIDED RAM PUMP FOR 60 LBS. PER SQ. INCH.

PLEASE APPLY FOR CATALOGUE No. 8A.

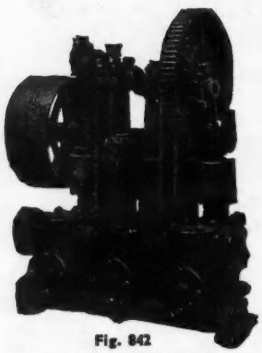


Fig. 842
VERTICAL TREBLE RAM PUMP FOR 150 LBS. PER SQ. INCH.

Fig. 187
DOUBLE ACTING HORIZONTAL PUMP.

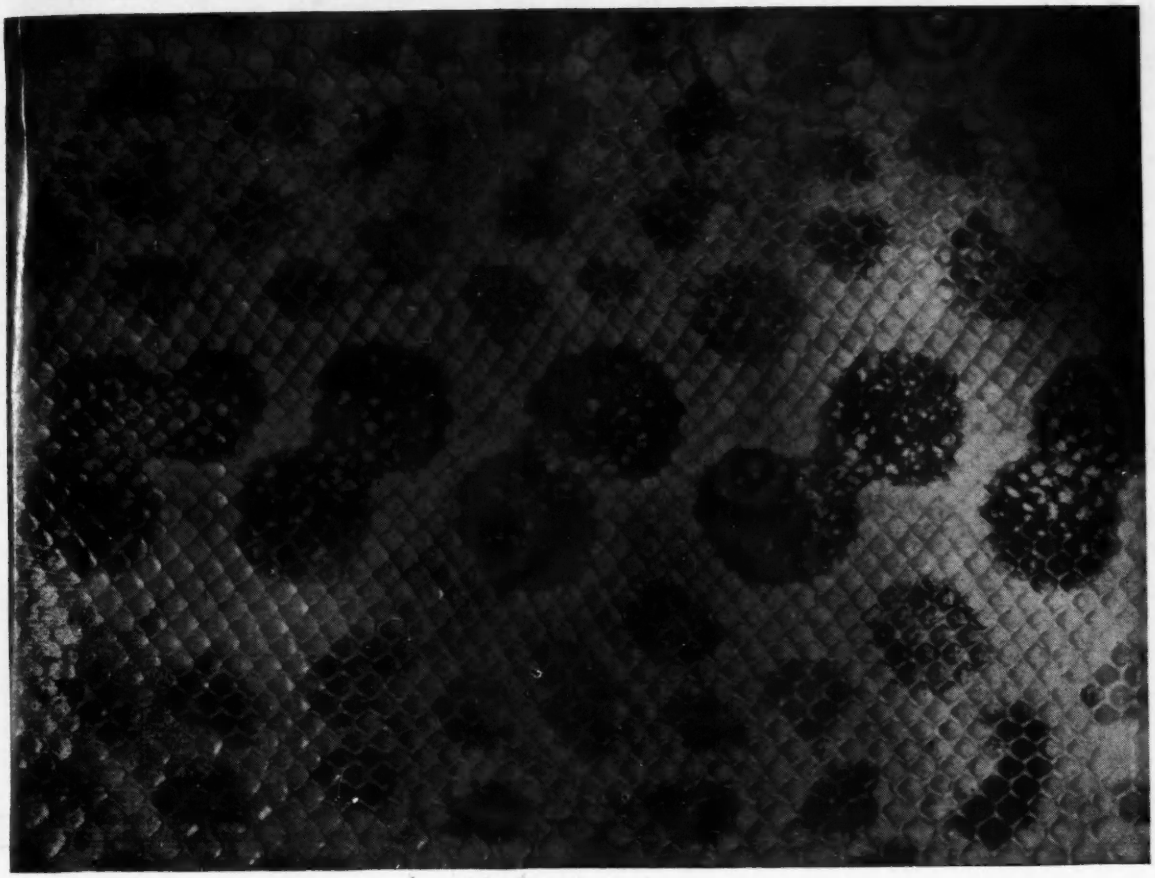
Fig. 69
COVERED HEAD CHAIN PUMP.

Fig. 324
BELT DRIVEN DOUBLE BARREL PUMP FOR DEEP WELLS

TRADE MARK

JOSEPH EVANS & SONS
(WOLVERHAMPTON) LTD.

Printed by Straker Brothers, Ltd., London, E.C.2, for Walter King, Limited, 11, Bolt Court, Fleet Street, London, E.C.4.—Wednesday, July 4, 1945.



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